

ADULT LEARNER SATISFACTION WITH WEB-BASED
NON-CREDIT WORKFORCE TRAINING

Pamela Cope Morgan, B.A., M.Ed.

Dissertation Prepared for the Degree of
DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

August 2007

APPROVED:

Jerry Wircenski, Major Professor and Program
Coordinator

Philip Turner, Minor Professor

Michelle Wircenski, Committee Member

Robin K. Henson, Interim Chair of the
Department of Technology and
Cognition

M. Jean Keller, Dean of the College of
Education

Sandra L. Terrell, Dean of the Robert B.
Toulouse School of Graduate Studies

Morgan, Pamela Cope. Adult learner satisfaction with web-based non-credit work force training. Doctor of Philosophy (Applied Technology and Performance Improvement), August 2007, 98 pp., 12 tables, 4 figures, references, 96 titles.

Web-based training has become a billion dollar industry in the United States. Electronically aided learning is viewed by many companies as a cost-effective way to deliver the up-to-date, up-gradable job-related training that the industry is demanding. This study sought to examine the relationship between learners' satisfaction with online training as it relates to learner readiness, online features, and course relevance.

The population for this study was adults seeking non-credit workforce training, specifically library professionals who were involved in web-based training through the Lifelong Education @ Desktop (LE@D) program at the University of North Texas, Denton. Online methods of training are used most extensively in the area of mandatory or compliance training, in which 35 % of training is conducted mostly or completely online.

The total potential library population using LE@D product to date is approximately 4,000 unique enrollments nationwide. Participants were selected from a complete list of unique LE@D users over a 90-day period. A survey instrument was sent via e-mail to 514 enrollees who had completed a recent LE@D online training course. In total, 254 participants responded to the survey.

Bivariate analysis of the variables using the Pearson product-moment correlation was used to determine the occurrence and strength of a relationship between each of the three independent variables and the dependent variable in order to test the three research hypotheses. A regression model was used to explain how significantly the

three independent variables, that is, online features, learner readiness, and course relevance, would have an impact on learner satisfaction.

Results suggest that learner awareness of issues surrounding online features, learner readiness, and course relevance have a statistically significant impact on the overall satisfaction of the Web-based training event. As companies continue to adopt eLearning as a training investment, attention should be given to the end-users experiences. Employee responses to Web-based training are important because employee satisfaction is an indicator that a company's training investment will result in positive outcomes.

Copyright 2007

by

Pamela Cope Morgan

ACKNOWLEDGEMENTS

The pursuit and completion of my degree and doctoral dissertation is one of the most difficult and rewarding goals I've ever attained. The goal has been supported and encouraged by a number of people that are important to me. I need to start with the individuals that actually guided the academic process, my advisor and committee members: Dr. Jerry Wircenski, major professor, advisor, committee chair, and all around good guy. Thank you for the high standards you set for me and the encouragement, understanding, and advice you've given me throughout my graduate studies and dissertation. You've not only been a mentor, but a friend. Dr. Philip Turner, my minor professor, your passion for distance education is contagious and your guidance throughout this research project was invaluable. Thank you for the wonderful research ideas; it was a pleasure working with you. Dr. Mickey Wircenski, professor and committee member, you are truly the department's sunshine. Your attitude, encouragement, and positive feedback were always appreciated. I also want to thank a couple of my classmates, Chris Wike and Kim Nimon for their firm encouragement and demand for accountability. It was a difficult process and the two of you were great for support, feedback, and advice.

Grateful acknowledgement goes to colleagues with whom I have been associated through Midwestern State University in Wichita Falls, Texas. In particular, my thanks to Dr. Jesse Rogers for always believing in me and for encouraging me to pursue my terminal degree; Dr. Friederike Wiedemann and Dr. Robert Clark for your support and influence, Neta Roberts, James Morris, Doris Owens, and Crystal Boyle for your suggestions, comments, edits, and positive attitude. You are great to work with.

Thank you to Mitzi Lewis and Dr. Matthew Capps for your assistance and patience with statistics.

This dream would not have been possible without my family and friends. It all started with my mom, Darlene Cope, for making me go to college in the first place. It never occurred to you that I couldn't do it and so it never occurred to me either. Thank you to my husband and best friend Jerry and kids Rustin and Rachel for all the nights you allowed me to work at the computer, study for tests, cut vacations short, and complain about a headache. You've been great and I love and appreciate you. Thanks to my sister LaDonna and brother Jimmy for always asking how I was doing and being interested in the answer. LaDonna, you've been a great cheerleader. Thank you to my dear friend Crystal for editing, for the tables you fixed, the papers you proofed, and the kids you took to help me out. To my friends, Karen, Lisa, and Lana for all the help with Girl Scouts, PTA, parties, drop offs, and last minute changes in plans. Your support made a difference.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	vii
LIST OF ILLUSTRATIONS.....	viii
Chapter	
1. INTRODUCTION	1
Need for the Study	
Theoretical Framework	
Purpose of the Study	
Research Hypotheses	
Limitations	
Delimitations	
Definition of Terms	
Summary	
2. LITERATURE REVIEW	15
Rationale for Desktop Training	
Learner Satisfaction and Study Variables	
Research Pertinent to the Instrument	
Summary	
3. RESEARCH METHODOLOGY	28
Overview	
Research Design	
Population	
Sample	
Instrumentation	
Variables	
Validity	
Reliability	

	Data Collection Procedures	
	Data Analysis Procedures	
	Summary	
4.	RESULTS	44
	Introduction	
	Participants in the Study	
	Instrument Reliability	
	Descriptive Statistics	
	Data Analysis	
	Summary	
5.	DISCUSSIONS AND RECOMMENDATIONS	61
	Introduction	
	Summary of the Study	
	Discussion of Results	
	Future Research	
	Summary	
	APPENDICES	75
	REFERENCES.....	87

LIST OF TABLES

	Page
1. Lifelong Education @ Desktop Courses	30
2. Source of Research Survey Instrument Questions	33
3. Anderson's Pilot Study – Reliability	40
4. Anderson's Primary Study – Reliability	41
5. Reliability of Survey Items	46
6. Survey Constructs Means and Standard Deviations	49
7. Satisfaction Correlated Independent Variables.....	51
8. Survey Online Features Means and Standard Deviations	52
9. Survey Learner Readiness Means and Standard Deviations	54
10. Survey Course Relevance Means and Standard Deviations	56
11. Regression Model.....	58
12. Variable Contribution	59

LIST OF ILLUSTRATIONS

	Page
1. Homoscedasticity analyses scatterplot.....	50
2. Correlation Scatterplot, learner satisfaction and online features.....	53
3. Correlation Scatterplot, learner satisfaction and learner readiness	55
4. Correlation Scatterplot, learner satisfaction and course relevance.....	57

CHAPTER 1

INTRODUCTION

The Internet and interrelated technology are changing the way people learn, socialize, and work. However, the evolution of Web-based training, as with most innovations, has been met with both skepticism and enthusiasm (Jones, Koh, Hill, & Singleton, 2004). Predictions of either failure or success are numerous. Researchers such as Greengard (1999) predicted that the online training boom would involve billions of dollars in anticipated revenues. According to a report by Duggan and Barich (2001), the need for employees with specific and up-gradable knowledge represents an \$885 billion industry in the U.S. and a \$2-trillion industry globally. Web-based or electronically aided learning is viewed by many companies as a cost-effective way to deliver the up-to-date, up-gradable job-related training that the industry is demanding.

Online methods of training are used most extensively in the area of mandatory or compliance training, in which 35 % of training is conducted “mostly or completely” online (“Industry Report,” 2006, p. 28). Because of the critical nature of compliance programs, many groups such as library professionals are turning to online delivery to make these programs easier to implement. Much of the literature committed to Web-based training presents case studies and anecdotal information about how, when, where, and why web-based training has been implemented, along with costs savings. Few studies exist concerning how employees perceive Web-based training (Jones et al., 2004). Even the studies focusing on Web-based initiatives in global companies

focus more on training cost savings than on the perceptions or satisfaction levels of the employees (Greengard, 1999; Jones et al., 2004; Levin, 2001).

According to Anderson (2005), employers are turning to Web-based training to provide employees with the needed skills, knowledge, and abilities to allow them to carry out their jobs effectively and efficiently. Adults are using the Internet with increasing frequency for their learning and training needs; as a result, changes in technology, employee demographics, and globalization are challenging organizations to discover new solutions to assist employees in gaining the knowledge, skills, and attitudes required for high-quality job performance (Schank, 2002). At least 60 % of technology-based learning was online in 2005, and almost 90 % of the online learning was self-paced (Ketter, 2006).

Many corporations have begun to follow this trend and move away from instructor-led classroom training to Web-based or desktop training. Companies are seeking to utilize desktop training to gain a competitive edge in business. In unpredictable times, intelligent companies do more than survive; they forecast the future and deploy training systems that fit their organization's needs ("Real-Time Results," 2006). Web-based training has the potential to reach a larger, more geographically dispersed audience (Boyle, 2002). With the advantages of standardizing training, decreasing time away from jobs, adaptability, convenience, and savings on travel, facility, and distribution costs, the move to desktop training opportunities should continue to grow.

Addressing training needs may not be new, but how companies approach this problem is ("Real-Time Results," 2006). One cannot ignore the overwhelming accolades that this relatively new medium receives from leading companies and respected leaders. The promise of delivering efficient and effective training that provides what learners need, when and where they need it, while reducing associated financial and human resource requirements, holds great appeal for small and large businesses alike (Hicks, 2000).

Even with the success of online training in recent years, the advantages that managers seek through online learning depend on the wise selection of technologies and the effective use of the tools in order to maximize their training investments (Anderson, 2005). Thus, identifying the most advantageous online training opportunities is important to both the organizations and the learners. It is a good idea to remind ourselves that the learning enterprise is not about educators: the focus should be placed on the learning, not the teaching. Similarly, in providing learner support, we should focus on what the learner needs, not on what we want to or are able to supply. It is surprising how easily this emphasis can be lost in our wish to help (Hughes, 2004).

How do companies and learners identify which online training courses are appropriate to their needs? Do learners need to have special skills to take a desktop course? Selection of online training courses is a difficult undertaking because there is insufficient information about the crucial factors that influence consequent learner satisfaction (Bures, Amundsen, & Abrami, 2002).

Learner satisfaction is an important component of motivation, according to Keller's (1987) attention, relevance, confidence, and satisfaction (ARCS) model. If employees feel positive about potential learning outcomes, they will be motivated to learn. Keller discussed three main strategies to promote learner satisfaction. The strategies include *natural consequences*, in which the learner is provided realistic situations to apply newly learned skill; *positive consequences*, such as feedback throughout the training module; and *clear expectations* throughout the training so as not to disappoint or discourage learners. All of these strategies are implemented through various online tools within the training course. This may include simulations, games, surveys, videos, and case studies.

What type of Web-based course is best suited to satisfy the adult learner in today's organizations? Research has been conducted regarding student satisfaction in online for-credit courses, but much less has been written regarding learner satisfaction in Web-based adult continuing education and training. Are the needs the same for both adult learner and student satisfaction?

Contact and interaction with the instructor were found to be the key contributors to student satisfaction in an online for-credit course. As referenced in Johnston, Killion, and Oomen (2005), timely feedback from the instructor and interaction with the instructor were reported as statistically significant in several studies (Gilroy, Long, Rangecroft, & Tricker, 1999; Mayzer & DeJong, 2003; Roblyer & Wiencke, 2003). Many other course management issues were found to contribute to student satisfaction. Among these were clarity and relevance of

assignments and communication; access to campus-based resources; availability of technical support; and orientation to the course, technology, and equipment (DeBourgh, 2003). The quality of the course content and feedback are also important (Sole & Lindquist, 2001).

Learner satisfaction with online learning is noticeably related to a number of critical education outcomes. Drennan, Kennedy, and Pisarski (2005) identified two major student attributes of learner satisfaction: (a) positive perceptions of technology in terms of ease of access and use of online flexible learning material and (b) autonomous and innovative learning styles. Research has shown that employees' ongoing participation in distance education depends to a large degree on student satisfaction (Arbaugh, 2000).

Studies of learner satisfaction with regard to training are typically limited to one-dimensional post training perceptions of learners which are too often measured with *happy sheets* rating the overall experience (Johnson, Aragon, Shaik, & Palma-Rivas, 2000). In order for employees and organizations to identify suitable Web-based training courses, the main factors influencing subsequent student satisfaction must be identified (Bures et al., 2002; Eastmond, 1994; Gunawardena & Duphorne, 2000).

Need for the Study

The growth of Web-based training is rapid and pervasive around the world (Jones et al., 2004). While there are increasing numbers of studies on the financial aspects of Web-based training, little has been written on the human factors that are a part of the success stories, such as learner satisfaction.

Significantly less research exists regarding satisfaction as it relates to online training for industry and private organizations. Considerable knowledge is missing regarding these constructs and how they affect online learners' subsequent satisfaction (Bures et al., 2002; Eastmond, 1994; Gunawardena & Duphorne, 2000).

A few foundational research studies have examined learner satisfaction and the effect of learner readiness, course relevance, and online features in academic computer-mediated communication (CMC) courses delivered in a college environment (Anderson, 2005). The studies germane to this research include work from Anderson (2005), Bures et al. (2002), Eastmond (1994), and Gunawardena and Duphorne (2000). It is important to note that other than the Anderson study, these variables have not been studied for electronic learning (eLearning) delivered via the Internet. As a result of Anderson's work, the creation of an eLearning survey instrument was developed and implemented in the recent research study to carry out additional research on the subject of adult learner satisfaction with Web-based non-credit workforce training.

Library professionals experience continual change, and this change affects the way they manage operations, comply with new mandates, and provide training. According to Persinos (2005), success is often a result of responding to changes quickly, effectively, and comprehensively. The frantic rate of change requires employees and customers to be able to access and act on growing amounts of information in a shorter timeframe. In response to these

changes and challenges, many libraries are reevaluating the way they train employees.

Historically, training for public library staff has included travel, day-long sessions, videos, discussions, and guest speakers. The process is costly in both expense and time. One of the most difficult hurdles to overcome in providing staff training is scheduling. Due to budget cutbacks, libraries are chronically understaffed; therefore, keeping the desk covered while other staff members attend training is a problem. According to an informal and anonymous survey conducted among various regional library administrators, two major obstacles surfaced as reasons that prevent a more comprehensive plan of staff education. 1. Lack of funds to pay for classes and/or travel expenses 2. Limited staffing would present a hardship if we allow large numbers of staff to attend any single training session.

Many libraries are beginning to turn to online courses for their staff training needs. An anonymous response to the survey affirmed that short staffing, vacancies and hiring freezes mean we do not have enough staff to cover our service and circulation desks during open hours. You can't train them off site or even off the floor if they can't get away from direct service to patrons.

Online training or desktop training is part of a major transformation for public libraries. As the vision and expectations of library service evolve, the need to empower and support the development of online skills and knowledge cannot be denied. According to Thomas (2001), knowledge is the most important raw material. Knowledge is the most important source of added value.

Knowledge is the most important output. If companies are not managing knowledge, they are not paying attention to business. Online training addresses the necessity to improve this knowledge value procession. As a result, many library staff have looked for career-related resolutions and turned to online training resources to answer this need.

Many providers are developing and delivering the training necessary for today's public libraries. They are developing training tools to supply the on-demand learning that overcomes timing, attendance, and travel difficulties (Simonson, Smaldino, Albright, & Zvacek, 2002). Two such providers are WebJunction ("WebJunction", 2003) and University of North Texas Project Library Education @ Desktop ("Le@d," 2003). These two programs are examples of affordable Internet-delivered continuing education for library professionals and staff. These providers and others offer an online community where library staff meets to share ideas, solve problems, and take online courses. They offer a wide variety of topics, from Web design and fundraising to privacy and confidentiality. Library professionals can go to sites such as these for help from experts or peers with first-hand knowledge. Courses are developed by recognized subject matter experts and are designed to meet the needs of libraries of all sizes and locales. This type of training offers the participants flexibility to work at their own pace and schedule. Online training or desktop training opportunities assist organizations with constraints such as location, size of organization, time, travel, budget restrictions, and attendance.

Online training development is essential to meeting the learning needs of public library professionals and other adult professionals. Success depends on keeping staff up-to-date with knowledge and skilled in the latest concepts and technology (Stockley, 2005). Desktop training providers such as LE@D are developing effective and efficient tools to increase the knowledge and skills of organizations with training challenges such as public libraries.

Theoretical Framework

The primary framework for this study is based on several studies, including the adult distance study through computer conferencing (ADSCC) model by Eastmond (as cited in Gunawaderna and Duphorne, 2000). Eastmond's (1994) model was used to guide understanding of the student's experience using online learning. The studies of Gunawardena and Duphorne (2000) and Bures et al. (2002) were also used as groundwork for this study. As noted in Anderson (2005), these studies examined to varying degrees how perceived learner readiness, course relevance, and online features in academic computer-mediated communication (CMC) affect learner satisfaction. The research samples from the studies were students enrolled in 2- and 4-year credit degree programs. This researcher sampled adults enrolled in a Web-based non-credit training event.

Eastmond (1994) highlighted the ways in which Web based learning requires and facilitates learning-how-to-learn skills, such as locating and accessing information resources, organizing information, conducting self-assessment, and collaborating. Adult learners in his study found the following

strategies critical to success in electronic learning: becoming comfortable with the technology, determining how often to go online, dealing with textual ambiguity, processing information on- or off-line, seeking and giving feedback, and using one's learning style to personalize the course.

Gunawardena and Duphorne (2000) employed a quantitative method study to test Eastmond's (1994) ADSCC model to determine whether perceived learner readiness, online features, and CMC-related learning approaches are associated with learner satisfaction in CMC. They studied 50 students from five universities. The participants completed the 61-item questionnaire developed as part of their study. Cronbach's coefficient alpha for learner readiness (.72), online features (.78), learning approaches (.84), and learner satisfaction (.85) showed that all the scales had good reliability.

Gunawardena and Duphorne (2000) used Pearson product-moment correlation coefficient to determine the relationship between the variables. The results of their investigation showed that all three variables were positively correlated with learner satisfaction. Online features were the best predictor of learner satisfaction. This research involved students enrolled in for-credit programs.

Bures et al. (2002) explored course relevance through the lens of task-specific motivation, referring to the extent to which the subject of study has personal relevance and value to the learner. Student satisfaction with CMC was measured through several items constructed into three subscales: satisfaction with CMC's impact on the learning process, satisfaction with the process of

using CMC, and overall feelings relative to face-to-face instruction (Anderson, 2005). Bures et al. used the Pearson product-moment correlation to determine that course relevance and perceived learner readiness were significantly correlated with CMC satisfaction.

Purpose of the Study

The purpose of this study was to examine the relationship between learners' satisfaction with online training as it relates to learner readiness, online features, and course relevance. Learners enrolled in online training courses delivered by the University of North Texas Project LE@D (Library Education @ Desktop) were surveyed. There was significant research on student satisfaction in the academic arena; however, there was significantly less research regarding satisfaction as it relates to online training for industry and private organizations. As employers and producers of desktop training better understand the factors associated with student success in online learning environments, they can positively influence outcomes (Tresman, 2002).

Research Hypotheses

- H₁: There is no statistically significant relationship between online features and learner satisfaction in adult non-credit workforce Web-based training.
- H₂: There is no statistically significant relationship between learner readiness and learner satisfaction in adult non-credit workforce Web-based training.
- H₃: There is no statistically significant relationship between course relevance and learner satisfaction in adult non-credit workforce Web-based training.

Limitations

The sample for the current study was professionals working in public libraries. Participants in this study may have had previous online training experience and were adult learners who may have been higher performers or proved more self-directed than other learners. The study investigated learners who participated in a training course developed by one particular eLearning provider.

Delimitations

This study was limited to public library professionals. The sample population selected for this study was restricted to learners enrolled in a specific training module; thus, the ability to generalize to an entire population of adult learners involved in online training was limited.

Definition of Terms

Computer-mediated Communication (CMC) refers to courses delivered via a virtual classroom involving one- and two-way communication as the primary teaching tool (Gunawardena & Duphorne, 2000).

Course Relevance is defined as an employee's belief that he or she will gain needed job skills, knowledge, and abilities (Bures et al., 2002).

Desktop Training is a term describing Web-based training that is delivered to the desktop of the learner. It is used by organizations such as LE@D, providing non-credit training for employees.

Interaction is used in terms of the level of learners' critical thinking and critical reasoning skills and their interactions with others in terms of negotiation of

meaning and co-construction of knowledge in shared learning environments (Sringam & Greer, 2000, pp.82-83).

LE@D is the acronym for Lifelong education at desktop and is offered as a series of online continuing education tutorials through the University of North Texas, Denton.

Learner Readiness is evident when learners believe they have the skills to successfully participate in a Web-based activity and have been satisfied with past experiences (Bures et al. 2002).

Learner Satisfaction is a key component of motivation. If learners feel good about learning results, they will be motivated to learn (Keller, 1987). It is the self-reported level of learner satisfaction with the learning experience, the learner's intention to enroll in another online course, and the learner's willingness to recommend the completed course to a colleague (Anderson, 2005).

Learning involves the principles, facts and techniques that were understood and absorbed by the participants and identifies the guidelines or standards for evaluation in terms of learning (Kirkpatrick, 1979).

Online Features include the online tools that influence learning, such as navigation tools, interaction features, and various prompts (Gunawardena & Duphorne, 2000).

Web-based Training (WBT) is training delivered over a network. It can be either instructor-led or computer based and is similar to eLearning.

Summary

This chapter provided an overview of Web-based instruction. There is significant research examining the satisfaction levels of online education for students in higher education. However, there is an insufficient amount of literature regarding adult learners' satisfaction with non credit Web-based training. This chapter addressed the need for additional research on learner satisfaction as it pertains to Web-based training for companies and employees.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This chapter explores the literature encompassing both historical and theoretical work that focuses on the components of this study. Emphasis is placed on the research that was reviewed for this study, learner satisfaction with Web-based non-credit workforce training, and the significance of the study variables.

Rationale for Desktop Training

Professional development and job skills training have become a regular part of most people's careers. Many organizations are turning to desktop training, also known as Web-based training, now that research indicates that it can be as effective as traditional-classroom based instruction (Jung & Rha, 2000; Russell, 1999). Findings in previous studies have suggested that there is no significant difference in learning application between the traditional classroom instruction and distance education deliver format (Lim, 2002, 2004). Many researchers have concluded that instructional delivery format may not affect learners' learning or their application of learning to a significant degree (Lim, Morris, & Kupritz, 2006).

Web-based training places most of the responsibility for learning directly on the student ("Elearning vs.Traditional," 2006). This is the primary reason that statistics are skewed in favor of online training. Motivated learners do well with online training because it is a stimulating, efficient alternative to

classroom training. Unmotivated students either never start or fail to finish their online training course, and the results are often never reported. Advantages of Web-based training often cited in studies include convenience, standardized delivery, self-paced learning, and the variety of available content (Strother, 2002).

Arbaugh (2000) stated that the trend would only increase because of technological advances in both course software and computing capacity, as well as competitive pressures from external stakeholders. As the speed of change in technology and the general business environment continues to accelerate, companies must take advantage of the new Web-based infrastructure for learning if they want to maximize success (Duggan & Barich, 2001). These authors reported that in order for companies to remain competitive in an increasingly fast-paced economy, corporate workers must have quick, effective access to new information and sources of knowledge. This is one reason that desktop training is so appealing and effectual; it is an expedient tool for up- to-date information dissemination.

The level of satisfaction with the online training experience is an important issue due to the significant role desktop training now plays in organizations. The key to success is to have the requisite information regarding how learners will respond to Web-based training. As a result, companies need valid guidelines regarding when to use desktop training for selected types of learners, along with knowledge of how to assist employees in maximizing their individual learning outcomes. It is important to discover the attributed attitudes

and preferences of eLearners that lead to a higher level of employee satisfaction (Bures et al., 2002; Eastmond, 1994; Gunawardena & Duphorne, 2000).

Our knowledge of what makes these training courses and programs effective learning experiences is limited (Arbaugh, 2000), but what we do know is that Web-based learning environments make learning possible in completely new ways (Hamilton & Zimmerman, 2002). For many, this type of instruction is perceived as a major breakthrough in teaching and learning because it facilitates the exchange of information and expertise while providing opportunities for all types of learners in distant or disadvantaged locations (Johnson et al., 2000). The advantages of desktop training include not only accessibility, but also time and travel savings, increased participation due to ability to train more often in more locations, scalability, reduced expensed compared to instructor-led seminars, and up-to-date content. According to Bersin (2005), eLearning clearly increases the reach of programs to large audiences previously would not have been reachable by training. This particular eLearning characteristic is desirable to companies with diverse and geographically dispersed employees who may not typically have the chance to receive customized training. Elearning can also dramatically reduce cost while maintaining consistency, and it allows companies to roll out programs much faster than before.

It is important to note that research reaches conflicting conclusions as to whether participants find eLearning to be of more educational value than

traditional classroom training (Anderson, 2005). Some studies have concluded that students are more satisfied with eLearning as a result of convenience and other logistical factors (Strother, 2002). What factors impact satisfaction levels of adult learners in the workforce? The researcher attempted to examine more closely the role of learner satisfaction with Web-based non-credit workforce training.

Online training is a viable option for workforce training for many reasons. Advantages are well recognized, such as flexibility, accessibility, convenience, cross-platform, Web browser software, widely available Internet connections, inexpensive worldwide distribution, ease of update, travel cost, and time savings (Hall, 2001). *Internet-based training* is defined as any training that can be accessed over the Internet. Usually this is done with the World Wide Web, but e-mail correspondence courses and file transfers also fall into this category. New demands in organizations are increasing the interest in online options on a daily basis. The need for less expensive ways to deliver training has led many companies to explore the option of online training. The convenience for users of the programs, at their own pace and at their own place, and the engaging nature of the multimedia delivery are advantages. Travel expenses, instructor fees, facility costs, materials, and office equipment costs, in addition to the cost of lost time on the job when employees are in training, represent some of the savings realized through Web-based training.

Brown (2000) wrote that Web-based training delivery is a welcome alternative to managers who have little time to devote to the training of new

employees and to administrators who no longer must find, schedule, and staff classes that will meet the varied training and educational needs of diversely skilled employees. The flexibility of time, place, and programs offered via Web training is appealing to both managers and staff who are trying to balance the demands of work and the constraints of budgets.

Learner Satisfaction and Study Variables

Student success has been measured in numerous ways, including student achievement, self-perception of learning performance, student satisfaction, and student attrition from courses and programs in higher education (Bernard & Amundsen, 1989). Reports of student satisfaction with online courses in higher education are plentiful. Navarro (2000) reported that many students are highly satisfied with online courses. Hiltz (1993) found that communication software increased the quality of instruction, raised students' level of motivation due to greater access to their instructors, and increased their satisfaction with outcomes. Powers, Davis, and Torrence (1999) also reported high student satisfaction with their level of involvement in a graduate instructional technology course.

Student satisfaction is important because it influences the student's level of motivation, which is an important psychological factor in student success and is a good predictor of retention (Chute, Thompson, & Hancock, 1999). Hackman and Walker (1990) stated that an individual learner is ultimately responsible for determining whether the trade-offs of a distance

learning setting are worthwhile and are satisfying enough for a learner to complete the activity or course.

In the corporate training setting, learner satisfaction, learner outcomes, and results back on the job are primary outcomes (Anderson, 2005). The emphasis is on business results since the goal of training is to provide employees with the requisite knowledge, skills, and abilities to allow them to be more effective and efficient (Rovai, 2002). Given that student satisfaction is an important variable associated with eLearning in an academic setting, it is an important focus of this study.

Companies, employees, and developers of Web-based training can play a major role in the subsequent success of eLearning if they better understand what it takes to select or create more effective desktop training. Learners themselves, in addition to the education provider, can positively impact learning readiness and success with online tools (Eastmond, 1994). What is the relationship between learner's satisfaction with online training as it relates to learner readiness, online features, and course relevance?

Learner Readiness

The online learning environment can be challenging for learners of all kinds, both academic and corporate. Many learners may register for an online course because they think it will be easier or a better fit with their demanding schedules. However, they may have little understanding of the socio-psychological, communication, and technical skills required to succeed in an online learning environment. These issues have implications for institutions,

organizations, faculty, and students who are trying to determine the goodness of fit between distance education courses and a postsecondary student's skills, circumstances, and lifestyle (Slick, 2004).

Learner readiness relates to the various personal factors distance learners bring to the learning environment that influence the outcomes of their learning experience (Anderson, 2005; Gunawardena & Duphorne, 2000). Eastmond (1994) emphasized learning preferences and an array of learning strategies as key factors. The variety and degree of previous eLearning experience also play important roles. Bures et al. (2002) reported that self-efficacy was an important component of learner readiness since a student's belief that he or she is capable of mastering the online software is related to satisfaction.

Slick (2004) found a direct relationship between technical skills and satisfaction. Students who begin online courses with higher technical skills have significantly higher course satisfaction scores. This important aspect of learner readiness can have a significant impact on the learner's ability to succeed in the online environment. Research shows that anxiety can impair learning, and students need to be ready to concentrate on course content (Moore & Kearsley, 1996). Learners' awareness of their readiness to engage in an online learning environment may help reduce the stress and allow them to complete the course successfully.

Online Features

Many adult online learners indicate that the elements that engaged or interested them in Web-based training are the activities that simulated real-world situations and gave them hands-on experience, such as animations and simulation (Kim, 2005). Clark and Lyons (1999) stated that the type of training offered in online training is the determining factor in whether or not learning occurs. For example, when multimedia instruction that includes sound, animation, and/or video is used, the learner can become actively involved in learning processes through online animation. Some of the tools used in Web-based learning include e-mail, chat rooms, threaded discussions, bulletin boards, audio, and video; even the navigational features are considered interactive elements. Navigational components are important issues in the online environment. Learners should be able to move within the course Web site without getting lost (Aggarwal, 2000). External links should be provided when essential to the overall experience, and therefore must work properly or students will experience frustrations.

When interactivity is added, the program's capabilities are similar to those of CD-ROM programs and can be used to construct guided discovery environments such as conducting an examination and running lab tests (Clark & Lyons, 1999). Online discussion practice, early in a course, has been found to help students improve their writing skills and learn to express themselves comfortably on the discussion boards and have a higher degree of satisfaction with the online experience (Slick, 2004).

Course Relevance

The adult learner's motivation for completing a training module online is a critical component in shaping his or her level of satisfaction. In studying how to effectively design online courses, it is important to consider the students motivations towards enrolling. In a survey conducted by Laszlo (2003), the 5 most prevalent learning motives by distance learning students were identified: Course relevance received the strongest agreement as a learning motive followed by self-competence, reinforcement, course interest, and personal feelings and emotions.

Gibson (1990) pointed out that many distance education researchers interested in relevance have explored motivation related variables. Anderson (2005) examined how the learner's level of motivation for carrying out the learning task shaped his or her attitude toward the experience and the learning outcome. Keller's ARCS model incorporates four independent strategies, all of which are used to improve a learner's motivation toward learning (Smith & Ragan, 1999). One of the strategies is relevance, which is to show how the course materials are related to the learner's situation and to establish the current value of the instruction.

Course relevance is the personal and professional meaning the course has for the employee (Anderson, 2005). Bures et al. (2002) described course relevance as the extent to which the student is interested in a subject area. The learner has interest when he or she places a high value on a subject. As a result, the learner will be motivated to learn the subject area or task.

Research Pertinent to the Instrument

A review of the literature in relation to learner satisfaction with non credit Web-based training yielded few results. There were studies found that focused on learner satisfaction in for-credit online learning in college settings and these were reviewed for this study.

Satisfaction relates to perceptions of being able to achieve success and feelings about the achieved outcomes (Keller, 1983). In a study by Lim et al., (2006), findings elicited some implications for the importance of learning application, which leads to more learner satisfaction. Learners seemed to value those learning activities that they could apply to personal situations rather than merely understanding instructed learning theory. To promote more application and learner satisfaction, the authors suggested several instructional strategies. Those strategies include (a) making learning content “applicable” as suggested by Baldwin and Ford (1988); (b) utilizing reflective activities that assist learners in applying their learning to personal situations during instruction (Clark & Taylor, 1992); and (c) embedding a structured learning process composed of step-by-step guided practice after a segment of instruction, followed up by individual practice to reinforce the guided practice (Lim, 2002).

Bures et al. (2002), Eastmond (1994), and Gunawardena and Duphorne (2000) examined to varying degrees how perceived learner readiness, course relevance, and online features in academic CMC affect learner satisfaction. The research samples from their studies were students enrolled in 2- and 4- year higher education credit degree programs. Anderson

(2005) applied these studies to research satisfaction levels of eLearning for a specific corporation engaged in eLearning development.

Eastmond's (1994) ADSCC model is important research in the area of distance education because it provided the first framework for understanding the dynamics of learning by computer conferencing. Anderson (2005) noted the significance of Eastmond's study in that he acknowledged that educational institutions and learners themselves can positively impact readiness, online characteristics, and learning approaches. As a result, the model presents a powerful tool for improving learning effectiveness.

Eastmond (1994) conducted 38 interviews and observation sessions with 20 students and four faculty members from 4 higher education CMC courses. He used the findings of his qualitative study of CMC to develop an adult distance study through computer conferencing model (ADSCC) to guide understanding of the student experience using this online learning medium.

Bures et al. (2002) examined the relationship between student motivation and student satisfaction of learning via computer-mediated communications (CMC). Student satisfaction was measured through three subscales: satisfaction with CMC's impact on the learning process, satisfaction with the process of using CMC, and overall feelings relative to face-to-face instruction. Bures et al. discussed course relevance through the lens of task-specific motivation, referring to the extent to which the subject of the study has personal relevance and value to the learner (Anderson, 2005). The study measured course relevance through incorporating five items from The Motivated

Strategies for Learning Questionnaires (MSLQ) into a survey instrument. Using Pearson product-moment correlation to determine that course relevance was significantly correlated with satisfaction, the outcomes showed CMC satisfaction ($r = .33$) and satisfaction correlated with personal relevance ($r = .27$). Outcome expectations and self-efficacy to student satisfaction showed CMC satisfaction ($r = .44$), as did CMC self-efficacy ($r = .33$) (Bures et al., 2002)

The concepts of course relevance and perceived learner readiness as utilized by Bures et al. (2002), combined with Gunawardena and Duphorne's (2000) work, provided a strong basis for this variable in Anderson's (2005) study. The concept of learner satisfaction by Gunawardena and Duphorne was utilized in Anderson's study because their instrument has been shown to have a good degree of validity.

Other studies in the literature were drawn upon for this research as well as Anderson's (2005) study. Regarding online features, Davis (1989) identified the need for valid measurement scales for predicting user acceptance of computers. His study examined usefulness as the extent to which a software tool contributes to the user's productivity and ease of use as the effort required by the user to experience benefits from using the application. These concepts helped inform the online features variable used in Anderson's study that this research models.

Robinson and Robinson's (1998) study was also examined to support the notion that course relevance is a critical variable. Their research provided the basis for questions about the extent to which learners gained job-related

skills from the course and the degree to which learners were able to use what they learned in other contexts. Robinson and Robinson (1998) concluded that the more training performance outcomes are aligned with a company's corporate missions and vision, the greater the strategic impact of the distance training event in solving critical business issues (Anderson, 2005). This conclusion added an important outcomes-based aspect to course relevance in Anderson's study.

Summary

This chapter provided a brief overview of the literature reviewed for this study regarding learner satisfaction with online training. The information in this chapter supports the need for additional research on learner satisfaction as it pertains to adult non-credit Web-based training for companies and employees.

CHAPTER 3

METHODOLOGY

This chapter describes the methodology used to find and explain the existence and strength of the relationships between perceived learner readiness, online features, and course relevance (independent variables) and learner satisfaction (the dependent variable).

The population of interest is adults seeking non-credit workforce training, specifically library professionals. The goal was to test the research questions as to whether the independent variables are statistically significant in relation to learner satisfaction.

Research Design

This study is a correlational research design guided by three hypotheses. The study used survey research methodology because survey research is reliable, cost-effective, and may be collected in numerous ways (Alreck & Settle, 2004). Mail, telephone interview, and in-person interview surveys are the most common, but Web-based surveys are gaining in popularity (Scheuren, 2004). Questionnaires are an effective method used to collect information regarding a sample's characteristics, experiences, or opinions. The findings from survey questionnaires can be generalized to the larger population that the sample is supposed to represent (Gall, Borg, & Gall, 1996).

Surveys carried out for research purposes have three distinct characteristics (Pinsonneault & Kraemer, 1991). First, the purpose of survey is to produce quantitative descriptions of some aspects of the study population.

Survey analysis may be primarily concerned either with relationships between variables or with projecting findings descriptively to a predefined population (Glock, 1967). The subjects studied might be individuals, groups, organizations, or communities; they also might be projects, applications, or systems. Second, the main way of collecting information is by asking structured and predefined questions. The respondents' answers, which might refer to themselves or some other unit of analysis, constitutes the data to be analyzed. Third, information is generally collected about only a fraction of the study population, but it is collected in such a way as to be generalizable to the population (Pinsonneault & Kraemer, 1991).

Population

The population for this study was public library professionals who are involved in web-based training through the Lifelong Education @ Desktop (LE@D) program at the University of North Texas, Denton. The total potential library population using LE@D product to date is approximately 4,000 unique enrollments nationwide.

UNT offers, as a professional community service, a series of online continuing education tutorials. LE@D courses meet an urgent need in the professional library community. These online courses are designed to help librarians and library staff, volunteer managers, rehabilitation professionals, and business people deal with the challenges that are a part of their daily work lives.

In an effort to avoid surveying duplicate participants, a list of unique users enrolled in a LE@D course over a 90-day period was assembled. The

learners were enrolled in any one or more of the titles listed in Table 1. The results of the study are reported as a group. The total number of potential respondents for the current study is approximately 600. That number was derived from an estimated 200 unique or unduplicated participants per month, examining a 3-month period.

Table 1

Lifelong Education @ Desktop Courses

<i>Course titles</i>
Are You REALLY Ready to Volunteer?
Creating Compelling Programming in Your School Library
Copyright Basics for Librarians
Copyright Issues in the Classroom and Library
Improving Co-Worker Relations
Info-Age Etiquette
Grant Writing Basics
Harnessing the Internet
Improving Communication Skills
Keeping Your Library Looking Good
Multicultural Literature for Teens and Young Adults
Providing Excellent Customer Service in a Multicultural Environment
Managing Difficult Patrons with Confidence!
Using Microsoft Office: Word and Publisher
Library Privacy and Confidentiality: Law and Policy
Reaching Teenagers
RFID Technology
Retailing Methods and Techniques in Libraries

Reaching Reluctant Readers

Saturate Your Knowledge, Not Your Fat Intake

Trends in Children's Literature

Using Databases

Volunteers: Recruitment, Development, and Supervision

Creating an Engaging Website

Sample

The total population of 579 learners in an online LE@D course over a 90-day period was used as the sample. For descriptive research, using the largest sample possible is recommended (Borg, & Gall, 1996; Gay, 1987). According to Fraenkel and Wallen (1990), the larger the sample, the more likely it is to represent the population from which it comes. For this reason, all 579 participants were surveyed. Larger samples are better than smaller samples (all other things being equal) because larger samples tend to minimize the probability of errors, maximizing the accuracy of population estimates, and increase the generalizability of the results (Pedhazur, 1997).

The research sample included library professionals throughout the country. The survey instrument was distributed to each of the participants from the complete list of unique LE@D users over a 90-day period. Of the 579 participants emailed, 514 enrollees were contacted through correct e-mail addresses. In order to generalize the results to the entire library professionals training population at the .05 level of significance, 234 responses were required (Krejcie & Morgan, 1970). This sample size represents approximately 39% of

the total potential respondents. After the first email survey was sent, the respondent numbers were less than 234, therefore the survey was sent to the non-responders for a second and third time.

Instrumentation

The survey instrument for this research project drew upon the research methodology and instruments developed and used by Anderson (2005), Bures et al. (2002), Eastmond (1994), and Gunawardena and Duphorne (2000). Anderson based his survey on the previous studies and developed a survey instrument that is relevant to the unique needs of corporate eLearners. The author of the modified instrument was contacted to obtain a copy as well as the necessary permission to use his instrument.

The Anderson (2005) instrument is a combination of questions from appropriate research and adapted questions so that the research survey instrument is relevant to adult learners engaged in Web-based or desktop-delivered training. Some questions were discarded from the studies by Bures et al. (2002), Eastmond (1994), and Gunawardena and Duphorne (2000) because they were pertinent to a higher education for-credit setting. The results of their studies found statistically significant relationships ($p \leq .05$) in higher education distance education programs between student satisfaction and perceived learner readiness, course relevance, and online features. The wordings of some questions were revised, and others were combined to form a new question.

Table 2 represents the various studies upon which the survey instrument was based. The left-hand column includes the research variables,

and the right-hand column includes the original source of the questions before they were adapted (Anderson, 2005).

Table 2

Source of Research Survey Instrument Questions

Research variables	Sources of questions before they were adapted
Student Satisfaction	Questions adapted from Gunawardena and Duphorne (2000) included the learners willingness to participate in another CMC in the future; the degree to which the learner indicated that he/she was able to learn through the medium of CMC; and the extent to which the learner identified CMC as being an active versus passive learning experience.
Online Features	Davis (1989) provided research which led to the question of the extent to which online learning features such as videos and computer graphics enhanced learning. Eastmond (1994) offered questions regarding the extent to which the online CMC features lead to student satisfaction which were adapted for the eLearning environment. A question adapted from Gunawardena and Duphorne (2000) was the extent to which technical problems the learner experienced made it more difficult to participate in CMC.

Perceived Learner Readiness	<p>Questions adapted from Gunawardena and Duphorne (2000) included the extent to which the learner was comfortable with learning in a CMC environment and whether the learner had previously completed a CMC course. Questions adapted from Bures et al. (2002) included the extent to which the learner feels that CMC is an effective way to gain skills needed on the job and the degree to which the learner believes that CMC is a better way to learn than classroom training. Eastmond's (1994) discussion on the importance of the learning environment provided the basis for a question regarding the extent to which the learner was able to overcome any technical obstacles encountered.</p>
-----------------------------	---

The questions were based on a five-point Likert scale, with the scale ranging from strongly disagree (1) to strongly agree (5).

Variables

In light of the magnitude of investment by companies in Web-based training, it is important (a) to identify which training products or courses should be offered, (b) to target appropriate types of learners, and (c) to prepare them for their online experience. Similarly, employees have a difficult time with self-selection for participation in eLearning and preparation for online training (Anderson 2005). This is a complicated task because companies and employees have inadequate information regarding the main factors that influence subsequent student satisfaction (Bures et al., 2002; Eastmond, 1994; Gunawardena & Duphorne, 2000).

Student Satisfaction

Student satisfaction was prepared as the self-reported level of learner satisfaction with the learning experience, the learner's intention to enroll in another distance training course, and the learner's willingness to recommend a distance training course to a colleague (Anderson, 2005). As shown in Table 2, the student satisfaction variable primarily draws from the research of Gunawardena and Duphorne (2000). Learner satisfaction was measured using a 4-point Likert-type scale: 1 (*Strongly Disagree*), 2 (*Disagree*), 3 (*Agree*), and 4 (*Strongly Agree*), defined as satisfaction with the learning experience, intent to enroll in an additional web-based course, and the willingness to recommend a distance training course to a colleague. The data from the satisfaction scale produced an alpha score of .85, well above the widely accepted cut-off point of .70 (Anderson, 2005). The survey instrument was adapted from Gunawardena and Duphorne's (2000) questionnaire which measured student satisfaction using a five point Likert-type scale 1 (*Strongly Disagree*), 2 (*Disagree*), 3 (*Uncertain*), 4 (*Agree*), and 5 (*Strongly Agree*). The Cronbach's coefficient alpha for learner satisfaction was .85, indicating a high level of reliability.

Learner Readiness

The concept of learner readiness was based upon the work of Anderson (2005), Bures et al. (2002), Eastmond (1994), and Gunawardena and Duphorne (2000). The learner brings a set of skills, knowledge, and expectations to the learning environment. Learner readiness was operationalized as the various personal factors that distance learners bring to

learning environments that influence the outcome of their learning experiences. The extent and variety of prior experience with online learning are believed to be influential on learning experiences. Self-efficacy is a critical component since students' belief that they are capable of mastering the online software is related to satisfaction. The data from Gunawardena and Duphorne's (2000) learning readiness scale had a Cronbach's coefficient alpha of .72 whereas the data from Anderson's (2005) study had a Cronbach's coefficient alpha of .57. It is significant to note that this variable had the lowest alpha score in both studies. One of the most common scaled-response format questions in survey design today is the Likert scale. It was developed by the American educator and organizational psychologist Rensis Likert in 1932 as an attempt to improve the levels of measurement in social research through the use of standardized response categories in survey questionnaires. With a 5-point scale there is a nice midpoint. The 3 rating is in the middle indicating neutrality or mixed satisfaction. When calculating the mean weighted average there is a standard point of comparison (Likert, 1932)., The researcher knows instantly that an average rating of 3.4 is above neutral and a 2.8 is below. Survey researchers have argued that the number of scale points for responses should be able to capture the expected (and real) distribution of attitudes. Going from 5 points to 4 meaningfully reduces the researcher's ability to capture that distribution. Oddly enough, using 5 points often captures that distribution, and arguably, using 7 points is far better.

Online Features

The concept of online features was operationalized as the unique elements that make up the eLearning environment (Anderson, 2005). The quality of the online experience, including the quality of graphics and interactive exercises, can shape the value of the learning experience (Davis, 1989). The technology itself can present barriers such as the time it takes for Web pages to load. The online features scale in Anderson's study had an alpha score of .63 using the 4-point Likert scale. Gunawardena and Duphorne's (2000) survey instrument resulted in a Cronbach's coefficient alpha for online features of .78, indicating that the scale had a high level of reliability.

Course Relevance

The notion of course relevance was developed as the personal and professional relevance of the course for the employee or learner. The learner is most interested in learning when he or she attributes a high value to a subject (Anderson, 2005). Course relevance involves the extent to which the learner believes the training program will provide him or her with needed job skills, knowledge, and abilities. This belief is based on the research of Bures et al. (2002). The course relevance scale had a high alpha score of .87 in Anderson's instrument. Gunawardena and Duphorne's (2000) survey instrument did not have a course relevance scale, so it is not possible to perform a comparison. The course relevance variable is comprised of the personal and professional motivation the student has for completing the course, the extent to which the

employee enjoys the subject matter of the course, and the degree to which the employee can use the curriculum in other contexts (Anderson, 2005).

Validity

Validity is defined as the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure (Hinkle, Wiersma, & Jurs, 2003). A method can be reliable, consistently measuring the same thing, but not valid. Matross (1999) stated that validity concerns the degree to which the survey instrument content measures what it purports to be measuring.

Content validity involves the extent to which the instrument represents the content of interest. C. H. Lawshe developed one widely used method of measuring content validity. It is basically a method for gauging agreement among panelists or judges regarding how critical a particular item is. Lawshe (1975) proposed that each participant on the judging panel respond to the following question for each item: "Is the skill or knowledge measured by this item essential/useful but not essential/ not necessary to the performance of the construct?" According to Lawshe, if more than half the panelists indicate that an item is essential, that item has at least some content validity. Greater level of content validity exists as larger numbers of panelists agree that a particular item is essential.

The survey used in this research project was reviewed by a group of experts based on their knowledge of eLearning and survey methodology expertise. Anderson (2005) assembled a seven-member panel made up of

academics, corporate managers, and professionals with eLearning and training experience. The academics all had doctorates from accredited colleges and universities, and the eLearning professionals all had extensive experience in designing and managing training programs.

The survey was e-mailed to the panel members on two separate occasions, with edits and changes made to the survey in the interim. The panel was asked to consider the issue of validity, which is essentially a matter of considering balance (Anderson, 2005). Matross (1999) explained that balance in an instrument is focused on how to write questions that present issues in a balanced way, obtain responses in a balanced way, or counterbalance tendencies to give inaccurate responses. Panel members recommended removing two questions from the satisfactions scale, one question from the learning readiness scale, and one question from the online features scale. Additionally, the panel members recommended numerous edits to the wording of the questions within all four of the scales (Anderson, 2005).

Reliability

Reliability refers to whether one gets the same answer by using an instrument to measure something more than once (Bernard & Ryan, 2000). The survey instrument in Anderson's (2005) study was field tested to establish internal reliability before it was administered in his primary study. Reliability of an instrument is concerned with the replication of the data or outcomes (Litwin, 1995). It looks at the extent to which the instrument questions produces a consistent response. Anderson used Cronbach's coefficient alpha in order to

measure the inter-item consistency or homogeneity of the survey items (Ary, Jacobs, Razavieh, 1985).

Cronbach's alpha is the most common form of internal consistency reliability coefficient. Reliability coefficients should be at least .70 or higher to be considered reliable for affective instruments (Hinkle, 2000). Anderson (2005) sent the instrument to a randomly selected pilot group of 50 employees who had completed an online training course over a 2-month period. Thirty seven employees completed the survey, and the alpha scores for the dependent and independent variables are listed in Table 3.

Table 3

Anderson's (2005) Pilot Study - Reliability

Variable	Cronbach's alpha
Student Satisfaction	.85
Course Relevance	.87
Online Features	.68
Perceived Learner Readiness	.36

During his research, Anderson (2005) distributed the instrument to 275 employees of an online training production company. Of those, 170 employees completed the survey instrument, yielding a 62% response rate. Table 4 lists the alpha scores for the dependent and independent variables.

Table 4

Anderson's (2005) Primary Study - Reliability

Variable	Cronbach's alpha
Student Satisfaction	.85
Course Relevance	.75
Online Features	.63
Perceived Learner Readiness	.57

The satisfaction scale, course relevance scale, and online features scale in Anderson's (2005) pilot survey instrument all had acceptable alpha scores. However, the perceived readiness scale had an alpha score of .36, a result well below the standard accepted score of .70 or .80. Nevertheless, the perceived readiness scale in the primary study had an alpha score of .57. The concept of perceived learner readiness was based on Gunawardena and Duphorne's (2000) instrument. In their study, the learner readiness scale had an acceptable Cronbach's coefficient alpha of .72. One possible explanation for the lower level of reliability in both Anderson's pilot study and primary study is the removal of the option of *uncertain* or *not applicable*. Anderson used a 4-point Likert scale, while Gunawardena and Duphorne used a 5-point Likert scale.

Data Collection Procedures

To protect human subjects, the proposal for the study underwent a human studies committee review and was approved by the UNT Institutional Review Board before the data was collected. Confidentiality, anonymity, and

informed consent were maintained. E-mail notifications were sent at the time the survey was distributed and two reminders were sent out via e-mail.

The Vice Provost for Learning Enhancement and Professor, School of Library and Information Science, University of North Texas, approved utilizing the database of the LE@D program. E-mail was used to distribute and collect survey data. A survey instrument was sent to participants who had completed an online training course with LE@D within the previous 90 days (see Appendix A). An introductory letter was sent to the participants via email before the survey was administered (see Appendix B). The researcher explained who was asking for the information, what data were being sought, and the purpose of the study, and she requested their assistance in completing the survey.

The second e-mail followed, containing the survey. Participants were chosen from a complete list of enrollees over a 90-day period. The researcher had no access to the identity of the respondents.

Completed survey data were automatically captured by the survey package immediately after the participant selected the “submit” button. The first e-mail set of responses did not yield the appropriate sample size, therefore a second and a third e-mail with the survey was sent to the participants who did not respond.

Data Analysis Procedures

The data were analyzed using the Statistical package for the Social Sciences (SPSS) 14.0 for Windows. Both descriptive and inferential statistics were be used in this study. One of the strengths of a correlational study is that

it allows researchers to examine the nature of the relationship between variables without trying to manipulate or control the variables (Shavelson & Towne, 2002). Correlation studies are systematic attempts to isolate variables that co-vary. This research design provides information on the degree of the relationship between variables rather than establishing a cause and effect relationship (Anderson, 2005).

Bivariate analysis using the Pearson product-moment correlation was used to determine the occurrence and strength of a relationship between each of the three independent variables and the dependent variable in order to test hypotheses 1, 2, and 3. Matross (1999) reported that this statistical technique is especially useful in customer satisfaction studies with an overall satisfaction rating and then several ratings of each item. The goal is to relate multipoint variables to each other. Pearson correlation analysis helps determine the extent to which each of the three independent variables is significantly related to learner satisfaction (Anderson, 2005). The higher the level of correlation, the more attention should be paid to learner readiness, online features, and course relevance.

Summary

This chapter discussed the research design, population, sample, instrumentation, data collection procedures, and the analysis procedures used in this study.

CHAPTER 4

RESULTS

Introduction

The purpose of this study was to examine the relationship between learners' satisfaction with online training as it relates to learner readiness, online features, and course relevance. Each research hypothesis was tested using the results of the bivariate correlational procedures. The research hypotheses tested were as follows:

- H₁: There is no statistically significant relationship between online features and learner satisfaction in adult non-credit workforce Web-based training.
- H₂: There is no statistically significant relationship between learner readiness and learner satisfaction in adult non-credit workforce Web-based training.
- H₃: There is no statistically significant relationship between course relevance and learner satisfaction in adult non-credit workforce Web-based training.

This chapter provides the details concerning participants in the study, instrument reliability, data assessment, and data analysis. Data were gathered for this study by the researcher using the instrument described in chapter 3. The instrument has 4 constructs (questions 1-5 dealt with learner satisfaction, dependent variable, questions 6-10 pertained to course relevance, independent variable, questions 11-13 focused on online features, independent variable, questions 14-17 pertained to learner readiness, independent variable.)

Participants in the Study

The population identified for this study was initially contacted via email with a link to access the survey site. The initial e-mail introduced the study with a cover letter, informed consent notice, and directions to complete the survey, and offered an opportunity to be entered in a drawing for a \$75 gift card for completing the survey. A copy of the initial email is included in Appendix B.

The survey information was distributed to each of the 514 participants who had participated in an online training event with the LE@D program at the University of North Texas within the last 90-day period. Of the 514 emails received by participants, the response rate for the first mailing was 12%. A follow-up e-mail to all 514 participants was sent 1 week after the initial e-mail. A copy of the follow-up letter is included in Appendix C. This second request increased the response rate to 31%. A third request was sent exactly 1 week after the second request, with the subject line reading "Last Chance." The third request increased the response rate to 49%. Based on Krejcie and Morgan's (1970) sample size table at the .05 level of significance, the number of participants needed to respond for statistical significance is 234. Of the 514 participants who received the e-mail survey, 254 responded to the survey. The response rate of 254 is higher than the 234 survey responses required, assuming a desired margin of error of 5%.

Instrument Reliability

To be effective, an instrument must have both validity and reliability. The reliability of the constructs utilized in this study was analyzed using

Cronbach's alpha, a common measure of internal consistency (Shannon & Davenport, 2001). Results of the Cronbach's alpha calculations for the total instrument and each construct variable are provided in Table 5. The reliability alpha for all four constructs in the present study is .83, the higher the alpha score, the more reliable the scores. Reliability alphas for the dependent and independent variables meet or surpass the recommended reliability score of .70. A widely accepted cut-off in the social sciences is that alpha should be at least .70 or higher. The fact that .70 is as low as one may wish to go is reflected in the fact that when alpha is .70, the standard error of measurement will be over half (0.55) a standard deviation (Matross, 1999).

Table 5

Reliability of Survey Items

Variable	Cronbach's Alpha	Items	N
Total	.83	17	4
Student Satisfaction	.91	5	254
Online Features	.77	3	254
Learner Readiness	.70	4	254
Course Relevance	.91	5	254

An alpha score of .83 was reported for the total instrument, including all 17 items from the dependent variable of student satisfaction and the three independent variables, online features, learner readiness, and course relevance. According to Gall et al. (1996), tests that yield .80 or higher are

sufficiently reliable for most research purposes. An alpha score of .83 indicates a high level of reliability for the overall instrument.

The reliability measures for this study are comparable to that of Anderson's (2005) study. The satisfaction scale had an alpha of .91, indicating a high level of reliability. The five questions in this construct were kept from the Anderson study, which yielded an alpha score of .85, also indicating a high level of reliability. The satisfaction construct in the instrument was adapted by Anderson from Gunawardena and Duphorne's (2000) questionnaire. The Cronbach's coefficient alpha for learner satisfaction in that study was also .85, again indicating a high level of reliability for this construct.

The online features scale had an alpha score of .77, again above the widely accepted cut-off point of .70. This construct included four items from Anderson's (2005) study, which yielded an alpha score of .68. Gunawardena and Duphorne's (2000) instrument resulted in a Cronbach's coefficient alpha for online features of .78, indicating that the scale had a high level of reliability.

The learner readiness scale had an alpha score of .70, which was the lowest score, but still found to be reliable. Anderson (2005) reported a very low reliability alpha score of .36 for the learner readiness variable in his pilot study, whereas Gunawardena and Duphorne's (2000) obtained a high reliability score of .72 for learner readiness. This study and Gunawardena and Duphorne's study both reported statistically significant reliability scores for learner readiness; however, Anderson's study and coefficient of .36 fell well below the standard accepted score of .70.

The course relevance scale had a high alpha score of .91. This construct was also reported by Anderson (2005) and had a high alpha score of .87. This construct was made up of 5 items that covered the learners understanding of the subject matter, interest in the content, skill building and job related information, whether the learner liked the course, and whether the information in the course would prove useful on the job. The student satisfaction construct was comprised of 5 items that covered satisfaction with the online experience, the learner's plan to take another online course, whether the learner would recommend the course to others, feeling a sense of accomplishment, and whether the course kept the learner engaged. The online features construct had 3 items that questioned whether the video and computer graphics enhanced the learning, course assessments were measured effectively, and whether technical issues limited participation. The learner readiness construct was made up of 4 items dealing with comfort with online environment, whether obstacles interfered with learning, online learning as an effective way to gain job skills, and if learner considered online learning preferable to classroom instruction. Reliability for the independent variable and dependent variables, as well as the instrument as a whole, met or exceeded the acceptable minimum of .70 (Matross, 1999).

Descriptive Statistics

Table 6 presents the descriptive statistics, providing the mean (average rating) scores and standard deviations for the four constructs in the study. Satisfaction was relatively high throughout each construct, with individual item means ranging from 3.42 to 4.39 on a 5-point scale.

Table 6

Survey Constructs Means and Standard Deviations

Survey constructs	<i>N</i>	<i>M</i>	<i>SD</i>
Student Satisfaction	254	4.09	.67
Online Features	254	3.80	.76
Perceived Learner Readiness	254	3.99	.61
Course Relevance	254	4.18	.68

Note: n = 254

Homoscedasticity Analyses

Homoscedasticity refers to the assumption that the dependent variable exhibits similar amounts of variance across the range of values for an independent variable (Hutcheson, Graeme & Sofroniou 1999). The concept of homoscedasticity is best illustrated through a scatterplot showing the relationship between two variables. A regression was run to obtain a scatterplot of residuals and predicted values. Figure 1 shows the scatterplot which indicates grouped data demonstrating homogeneity of variance (Tabachanick & Fidell, 1996).

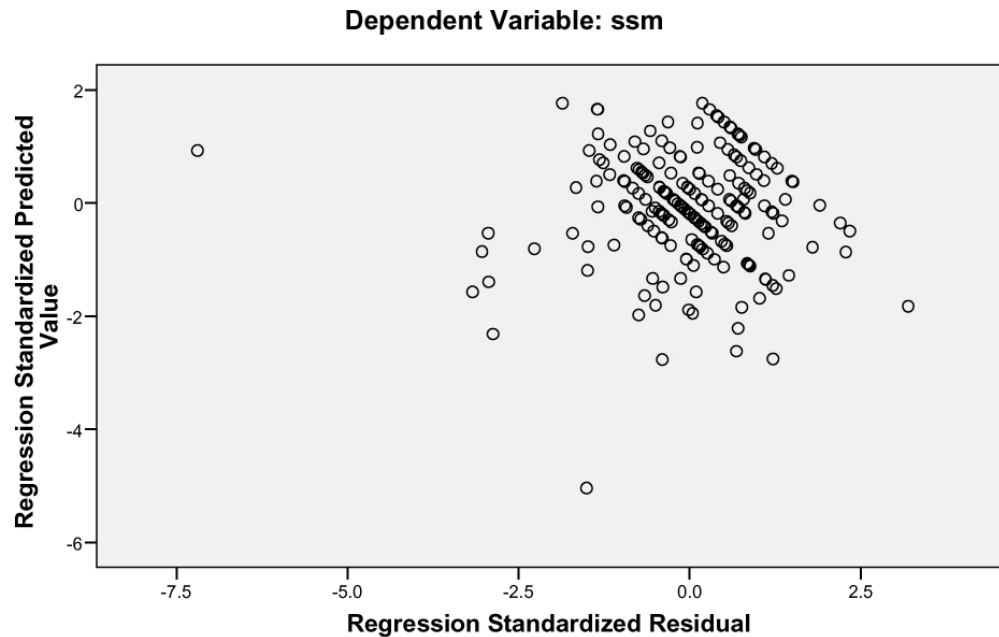


Figure 1. Homogeneity scatterplot. Note: SSM=student satisfaction mean

Data Analysis

The data were analyzed using the statistical package for the Social Sciences (SPSS) 14.0 for Windows. A Pearson product-moment correlation coefficient and multiple regressions were computed to examine the research hypotheses. The value of r is an appropriate correlational statistic for determining the magnitude and direction of the relationship between two measures (Gall et al., 2003). A regression model was used to explain how significantly the three independent variables, that is, online features, learner readiness, and course relevance, would have an impact on learner satisfaction.

Table 7 illustrates the results obtained when scores of learner satisfaction were correlated with the independent variables course relevance, online features, and learner readiness using the Pearson r . According to Hinkle

et al. (2003), the rule of thumb for interpreting the size of a correlation coefficient is .30 to .50, low positive correlation; .50-.70, moderate positive correlation; .70 to .90, high positive correlation; and .90 to 1.00, very high positive correlation. The same sizes of correlations are true for inverse (negative) direction.

Table 7

Satisfaction Correlated Independent Variables

Variables	r	p	r^2
Online Features	.64	$p \leq .001$.41
Learner Readiness	.51	$p \leq .001$.26
Course Relevance	.55	$p \leq .001$.30

H₁: There is no statistically significant relationship between online features and learner satisfaction in adult non-credit workforce Web-based training.

As shown in Table 7, this variable yielded the highest correlation coefficient of the study, $r(254) = .64$, $p \leq .001$, which indicates a statistically significant positive correlation between online features and learner satisfaction. Furthermore, the square of the correlation coefficient (.64) resulted in a large contribution (.41) toward explanation of known variance. The null hypothesis was rejected.

The square of a correlation coefficient (r) yields a statistic (r^2) that is called the explained variance (Gall et al., 2003) or the coefficient of determination (Hinkle et al., 2003). The r^2 is a familiar effect size that is often reported, perhaps because it is routinely given in the output of statistical

software (Henson, 2006). It is worth noting that correlations in the range of .70 and .90 have an r^2 value between .49 and .81 and are considered high.

Conversely, for correlations of less than .30, r^2 is less than .09, which means that less than 10 % of the variance in Y is associated with the variance in X.

Hinkle et al. (2003) suggested that as a rule of thumb, correlations of less than .30 indicate little, if any, relationship between variables. Fortunately that is not the case for this research hypothesis.

As Table 8 indicates, the construct of online features included in the survey instrument yielded the overall lowest construct mean of 3.80. The third question in the construct dealt with technical issues experienced in the Web-based training course. This question reported the highest standard deviation (1.01) of the entire survey instrument, indicating that the item yielded the most varied responses. It is worth mentioning that this question was worded in the negative and this may have contributed to the higher variation in responses.

Table 8

Survey Online Features Means and Standard Deviations

Online features	<i>N</i>	<i>M</i>	<i>SD</i>
Q11	254	3.77	.89
Q12	254	3.71	.86
Q13	254	3.89	1.01
Construct	254	3.80	.76

A scatterplot lets us see the relationships among variables (Gall et al., 2003). Figure 2 presents the results of the correlation, learner satisfaction, and online features in a scatterplot format.

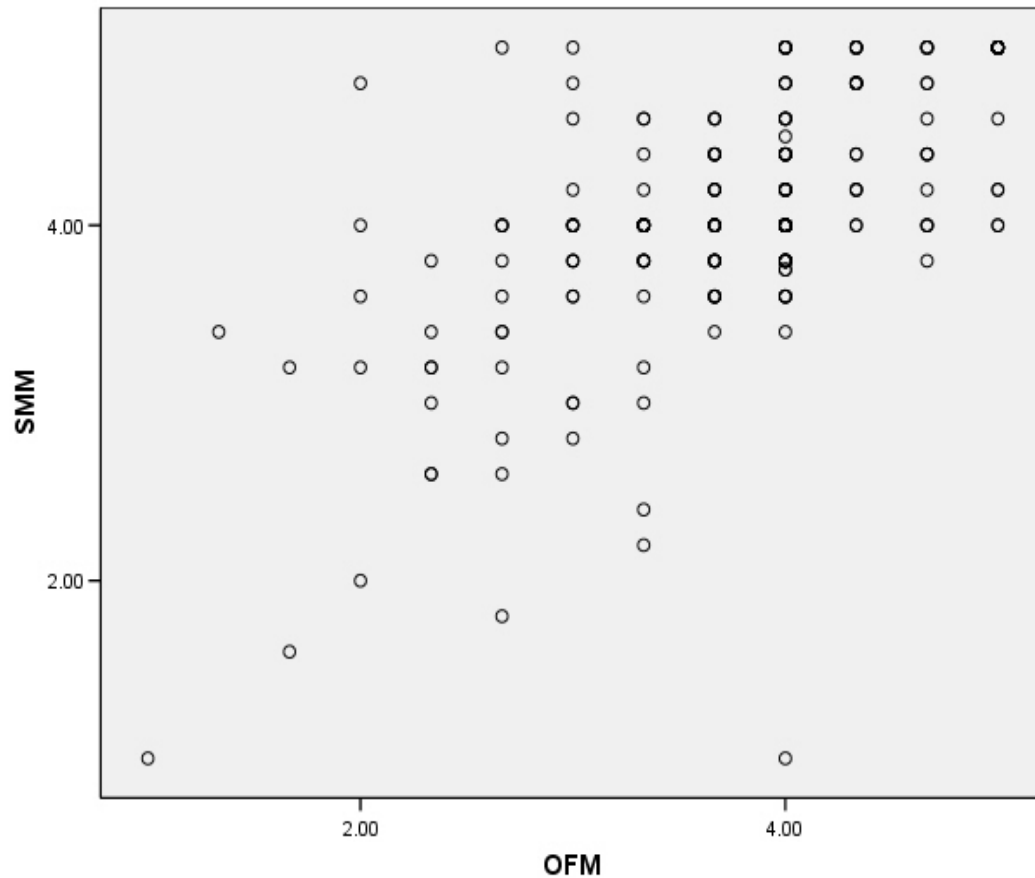


Figure 2. Scatterplot of independent variable online features. Note: OFM=online features mean

H₂: There is no statistically significant relationship between learner readiness and learner satisfaction in adult non-credit workforce Web-based training.

As indicated in Table 7, there is a positive correlation between the independent variable learner readiness and the dependent variable learner satisfaction, $r(254) = .51, p \leq .001$. The square of the correlation coefficient resulted in a statistically significant contribution (.26) toward explanation of known variance. The null hypothesis was rejected.

As Table 9 shows, the construct of learner readiness included in the survey instrument yielded the second lowest construct mean, of 3.98. This construct also reported an item with one of the highest standard deviations (1.00). This item questioned whether online learning was a better way to learn for on-the-job training than classroom methods. The standard deviation of 1.00 indicates one of the largest ranges of responses for the study.

Table 9

Survey Learner Readiness Means and Standard Deviations

Learner readiness	<i>N</i>	<i>M</i>	<i>SD</i>
Q14	254	4.04	.91
Q15	254	4.07	.81
Q16	254	4.39	.60
Q17	254	3.42	1.00
Construct	254	3.98	.61

Figure 3 presents the results of this correlation in a scatterplot format.

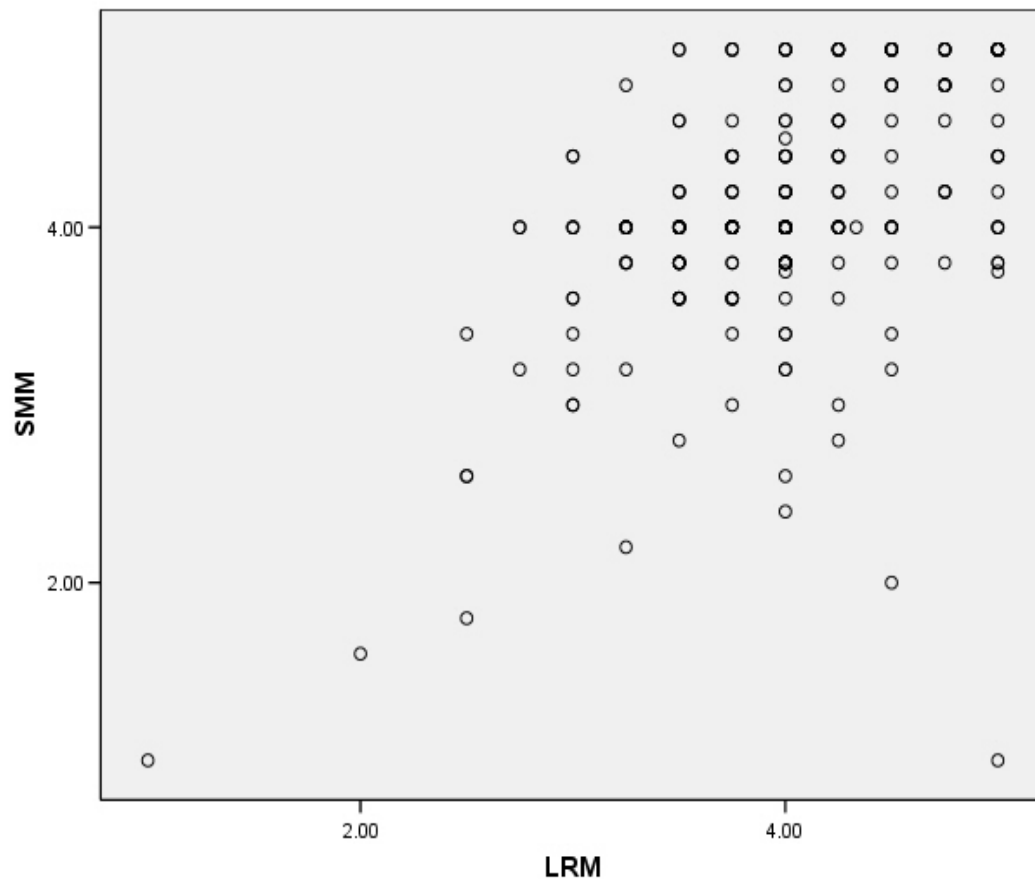


Figure 3. Scatterplot of independent variable learner readiness. Note: LRM = learner readiness mean

H₃: There is no statistically significant relationship between course relevance and learner satisfaction in adult non-credit workforce Web-based training.

There is a positive correlation between the independent variable course relevance and the dependent variable learner satisfaction; $r(254) = .55$, $p \leq .001$; so $r^2 = .30$. Thus, it can be concluded in this case that course relevance explains 30 % of the variance in learner satisfaction. The null hypothesis was rejected.

Table 10 represents the data for the construct of course relevance included in the survey instrument. The reported means for this construct yielded the highest construct mean of 4.17 with responses ranging from 3.93 to 4.29 on a satisfaction scale of 1 to 5. The standard deviations for this construct were relatively close with the exception of item Q10 which dealt with the usefulness of the course content in the respondent's current job.

Table 10

Survey Course Relevance Means and Standard Deviations

Course relevance	<i>N</i>	<i>M</i>	<i>SD</i>
Q6	253	4.29	.70
Q7	253	4.23	.76
Q8	253	4.23	.78
Q9	253	4.18	.78
Q10	253	3.93	.91
Construct	253	4.17	.67

Figure 4 presents the results of this correlation in a scatterplot format.

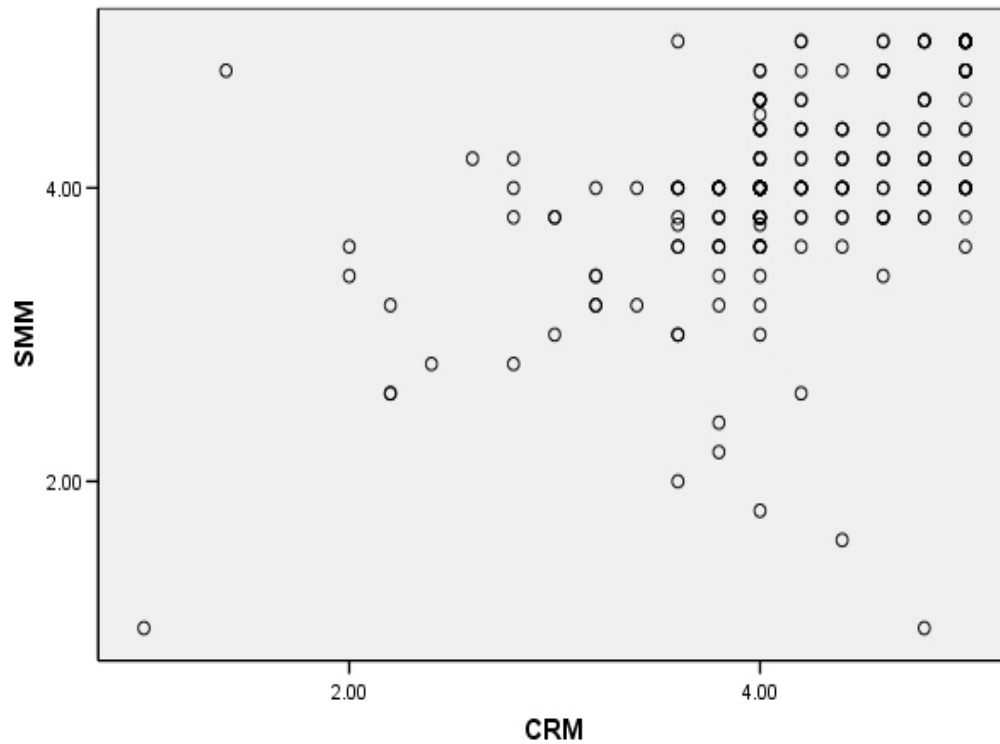


Figure 4. Scatterplot of independent variable course relevance.

Multiple correlation or the coefficient of multiple determination, also known as R^2 is the percent of the variance in the dependent explained uniquely or jointly by the independents. The R^2 was computed to assess the proportion of the dependent variable variance that can be explained by the independent, or predictor, variables, i.e. online features, learner readiness, and course relevance. Table 11 shows the findings of the analysis.

Table 11
Regression Model

	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>Std. error</i>
Regression	54.699	3	18.233	.692	.479	.472	.48921
Residual	59.592	249	.239				
Total	114.291	252					

As indicated above, a multiple regression was run to determine the effect size of the three independent variables, that is, online features, learner readiness, and course relevance, resulting in a multiple R of .692, accounting for 48% of the known variance. This means that 48% of the variance in learner satisfaction is associated with the three variables online features, learner readiness, and course relevance. The value of R^2 obtained from a sample is almost always an overestimation of what it would be in the population (Shannon & Davenport, 2001). Therefore, an adjusted R^2 is also reported. In this study, the difference between the reported R^2 (.479) and the adjusted R^2 (.472) was extremely small, indicating stability with this model if it were to be replicated.

The beta weights are the regression (b) coefficients for standardized data. Beta is the average amount the dependent increases when the independent increases one standard deviation and other independent variables are held constant. Betas reflect the unique contribution of each independent variable. An analysis of beta weights and structure coefficients was performed

(see Table 12) to determine the amount that the independent variable influences the dependent variable.

Table 12

Variable contribution

	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>beta</i>	<i>p</i>	<i>r</i> _s	<i>p</i>	<i>r</i> _s ²
Model 1	.692	.479	.472					
CR				.247	<.001	.795	<.001	.63
OF				.386	<.001	.926	<.001	.85
LR				.187	<.001	.736	<.001	.54

Note: CR=course relevance, OF=online features, LR=learner readiness

Data reported in this table indicate that all three variables had statistically significant positive relationships with the overall level of learner satisfaction. The online features ($\beta = .386$, $p < .001$) variable had the highest positive relationship. The flaws of interpreting only beta weights have been noted. Thompson and Borrello (1985) argued that structure coefficients are just as important to account. Reporting the squared structure coefficient in conjunction with the beta weight indicates that not only is online features the primary contributor to the regression model, it accounts for 85% of predicted learner satisfaction. The variables learner readiness and course relevance also had noteworthy positive relationships and account for a considerable amount of variance in the regression equation with squared structured coefficients of 54% and 63% respectively.

Summary

This chapter provided the findings of the study. The research hypotheses were tested with statistical analysis, and all three null hypotheses were rejected. The additional analysis of the squared correlation coefficient (r) found that the three independent variables online features, learner readiness, and course relevance, explained a noteworthy portion of what impacts learner satisfaction. Pearson's r^2 is the percent of variance in the dependent explained by the given independent. The contribution of these three variables to the variable of learner satisfaction is relatively large (41%, 26%, and 30%, respectively).

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

Introduction

Thorndike's law of effect theorizes that positive consequences occur when learning is successful (Chance, 1994). This learning theory, in part, can be applied to improving learner's satisfaction. What makes learning successful or satisfying? This is difficult to answer because there is insufficient literature regarding the key factors that influence subsequent learner satisfaction with non-credit Web-based learning.

The purpose of this study was to examine the relationship between learner satisfaction with online training as it relates to learner readiness, online features, and course relevance. This chapter includes discussion of the findings of this study, along with recommendations for further research.

Summary of the Study

The goal of this study was to evaluate the relationship between learner readiness, online features, and course relevance to learner satisfaction with web-based training. Providers of distance learning with the most successful outcomes made use of survey results, feedback from learners, or the record of complaints (Hawksley & Owen, 2002). Organizations need to pay attention to the end-users experiences and feedback. As investments in human, time, and financial resources for eLearning continue to rise, so should the interest in its effectiveness,

quality, barriers faced, and best practices (Mungania, 2003). Web-based learning is growing at an 8% annual rate, which is a \$5 billion investment (Britt, 2004; Jones, 2004). According to Simmons (2002) an increasing number of companies are adopting eLearning. But in their rush to take advantage of the benefits and promises, companies are finding that there are significant barriers to adoption.

The trend toward Web-based training seems apparent, but making wise decisions regarding the training intervention is less obvious to employers and employees alike. When the literature is searched to discover how employees perceive Web-based training, there is not much information available (Jones et al., 2004). Furthermore, even the studies focusing specifically on Web-based initiatives in organizations look more to training cost savings than on the perceptions or satisfaction levels of the employees (Greengard, 1999; Jones et al., 2004; Levin, 2001).

This study attempted to add to the body of research on learner satisfaction with online training. Specifically, this researcher sought to extend the literature concerning the relationship between learner satisfaction and learner readiness, online features in an online course, and course relevance. The study is important to businesses and their employees because there is currently insufficient information about the variables that influence subsequent learner satisfaction (Anderson, 2005; Bures et al., 2002; Eastmond, 1994; Gunawardena & Duphorne, 2000). Employee responses to Web-based training are important because

employee satisfaction is an indicator that a company's training investment will result in positive outcomes (Biner, 1993).

The relationship of learner readiness, online features, and course relevance with learner satisfaction with non-credit online training were studied using bivariate analysis and multiple regressions. The researcher utilized an existing instrument that had been used in a corporate online training environment. For this research project, the survey instrument was sent via e-mail to 514 participants who had taken an online training course with LE@D at the University of North Texas. A total of 254 respondents completed the survey instrument. The existence and strength of the relationships were tested using three research null hypotheses that were all rejected.

Online or desktop training is part of a major transformation for public libraries. With limited funding and reduced library staff, library professionals have turned to the Internet to meet their training requirements. The participants in this study were library professionals who had taken an online training course with LE@D in the last 90 days.

Discussion of Results

The results of this study indicate that learner awareness of issues surrounding online features, learner readiness, and course relevance may assist learners in self-selection of Web-based courses. Satisfaction was relatively high in all areas, with individual item means ranging from 3.42 to 4.39 on a 5-point scale. Construct means were high,

ranging from 3.80 to 4.18 on a 5-point scale. The mean scores point to satisfaction with the overall Web-based or desktop training that participants experienced through LE@D.

Data collected from the participant's survey responses were further analyzed to test the research null hypotheses. Results compiled from survey responses were used to discuss each hypothesis in order.

H₁: There is no statistically significant relationship between online features and learner satisfaction in adult non-credit workforce Web-based training.

This null hypothesis was rejected and found to be statistically significant. The finding is consistent with Anderson's (2005) study, which found a statistically significant positive correlation of $r = .63$, $p \leq .001$ between online features and learner satisfaction in eLearning. The results are also consistent with Gunawardena and Duphorne's (2000) information, which suggested that online features are the best predictor of learner satisfaction of the three independent variables, indicating a statistically significant positive correlation ($r = .59$; $p \leq .01$). The authors of that study reported this correlation as a "very significant, high positive correlation," whereas Hinkle et al. (2003) suggested that it is a moderate positive correlation.

Of the three research variables in the present study, online features had the strongest positive relationship with learner satisfaction. The square of the correlation coefficient (.64) resulted in a large

contribution (.41) toward explanation of known variance This finding is consistent with Gunawardena and Duphorne's (2000) study that also measured the online features variable and reported that if learners understood the distinctive features of online learning environments they were more likely to be satisfied with the learning experience. The strong association between online features and learner satisfaction indicates the importance of orienting adult learners to the unique characteristics of the online learning environment, including both its technical and social nature, and providing guidance on how to communicate effectively through this medium (Gunawardena & Duphorne, 2000).

Online features are the unique elements that make up the eLearning environment. The tools or elements found in a Web-based course are different from those in a classroom setting. The protocols and pacing of a Web-based course are different from those from traditional classroom training as well (Eastmond, 1994).

In post hoc analysis, the beta weights and structured coefficients were examined and reported. Neither beta weights nor structure coefficients are inherently superior or correct. Only the use of both sets of coefficients presents the full dynamics of the data when predictors are correlated, as is commonly expected in behavioral research (Courville & Thompson, 2001). The online features ($\beta = .386$, $p < .001$) variable had the highest positive relationship and was the primary contributor to the

regression equation, accounting for 85% of the learner satisfaction variable.

This study found that the features utilized in an online environment have a significant impact on the learner's satisfaction with the Web-based training experience. As the survey results indicate, the use of learning assessments, graphic or video features, and technical issues within the course play a significant role in the overall learning experience. Daniel (2000) pointed out that, when providing and supporting online training, smooth interaction, carefully designed Web pages, current enhancements, and technology testing is crucial to user satisfaction.

The results of the study could be used to assist Web-based instructional designers in creating curriculum and features that will increase students' engagement and satisfaction level. Emphasis on "best use" of features and online activities may lead to increased learner satisfaction (Anderson, 2005). Regular satisfaction surveys can ensure that navigational tools, learning interactions, and technical issues are not barriers to learning.

H₂: There is no statistically significant relationship between learner readiness and learner satisfaction in adult non-credit workforce Web-based training.

There is a positive correlation between the independent variable learner readiness and the dependent variable learner satisfaction; $r(254) = .51$, $p \leq .001$. The null hypothesis was rejected. This finding is consistent with the study by Anderson (2005), which yielded a correlation coefficient of $r = .57$, $p \leq$

.001, which was statistically significant. The current study (.51) and Anderson's study (.57) yielded higher correlation coefficients than Gunawardena and Duphorne's (2000) coefficient of $r = .27, p \leq .05$. They called their coefficient a "moderate, positive" correlation.

The current study obtained an acceptable reliability score (.70) for this independent variable (learner readiness). In previous studies, Anderson (2005) reported a low reliability score of .36, while Gunawardena and Duphorne (2000) reported a reliability score of .72. However, the correlation coefficients from those studies yielded opposite results. Anderson's correlation coefficient was a moderate positive correlation (.57), whereas Gunawardena and Duphorne's correlation coefficient (.27) was a low positive correlation (Hinkle et al., 2003).

Learner readiness seems at first glance to be simple and straightforward. Is the learner ready to learn or not? However, learner readiness is not that simple; it was defined in this study as the various personal factors a distance learner brings to the learning environment that influence the outcome of the learning experience (Anderson, 2005). The online learner may be returning to learning after some time away or may not have experienced online learning before. Both are key factors to learner readiness.

The results of this study can assist companies and designers in better understanding what actions to take to help learners and employees develop the capacity to learn. Tutorials designed to increase comfort with navigational tools and awareness of the course layout may increase employee self-efficacy, convincing them of their ability to master the online experience. Anderson

(2005) suggested that a tutorial could explain the many benefits of eLearning including its ability to assist employees in accomplishing goals, present past success stories with eLearning, and demonstrate brief navigational tours. The goal would be to increase the employees' prior experience and comfort with eLearning, which is a critical part of learner readiness. Without experience or other guidance, most learners are not adequately prepared to learn effectively from the technology-rich training opportunities offered by organizations. As a result, the training investments in high-tech delivery systems and courseware are not regularly achieving their potential impact on learner performance. Preparing learners for success in eLearning has become, therefore, a growing priority for training organizations (Watkins, 2005).

As learner readiness increases, so does the learner's satisfaction with the learning experience (Gunawardena & Duphorne, 2000). Learners who (a) had more experience in the online environment, (b) did not believe technology interfered with the learning, and (c) believed that online training was an effective way to gain job skills and information were more likely to be satisfied with their Web-based training experience. This shows the importance of paying attention to learner readiness factors in designing Web-based training. However, anticipating success in eLearning is not always easy for learners or their organizations. Self-assessment surveys prior to a training intervention can be used effectively to assist learners in identifying their strengths and weaknesses with regards to eLearning study skills. For example, there should be development of a self-assessment survey that asks questions regarding

technology or study skills that will be required later in the eLearning course. Web-based learners who do not believe that their current capabilities are sufficient, should be provided such resources as online tutorials, reference books, and help desk support that can aid their professional development in those areas (Watkins, 2005). Eastmond (1994) explained that learners can use their knowledge of online features to enhance readiness or successful adoption of the online environment.

It is interesting to note that Anderson (2005) concluded that due to his low reliability alpha of .36, the correlation coefficient for learner readiness is not reliable within the study and should be removed for consideration. He indicated that perhaps one cannot use the same types of learner readiness questions within corporate eLearning as one can use in the context of credit-based distance education. Anderson based this construct on the questions of Gunawardena and Duphorne (2000) and Bures et al. (2002), both of which focused on higher education students. However, this researcher found that the reliability alpha for learner readiness in the present study was .70, which matched Gunawardena and Duphorne's reliability score of .72. The present study did not demonstrate the same reliability issues regarding non-academic participants as Anderson's study. This construct is found to be reliable.

As shown in Table 12, a multiple regression analysis was utilized to look at the explained variance of the learner readiness variable. The learner readiness variable reported the smallest beta weight (.187); however the

structured coefficient (.736) indicated that this variable indeed had a sizeable contribution (54%) to the dependent variable learner satisfaction.

H₃: There is no statistically significant relationship between course relevance and learner satisfaction in adult non-credit workforce Web-based training.

There is a positive correlation between the independent variable course relevance and the dependent variable learner satisfaction; $r(254) = .55$, $p \leq .001$. The null hypothesis was rejected.

The result supports the studies by Anderson (2005) and Bures et al. (2002), which suggested that the learner would be more satisfied with online training if the course content held personal relevance and value to the learner. In Anderson's study, the course relevance variable yielded a correlation coefficient of $r = .75$, which was statistically significant.

Course relevance is the personal or professional importance the learner attributes to the course. Results suggest that it is important to understand and recognize the ways that Web-based training will provide needed skills, knowledge, and abilities. Studies that have looked at course relevance in online courses for higher education also reported that this variable is viewed to be germane to the student's overall satisfaction with the online course (Kennedy, 2002). Students who believe that the course is relevant to them can come to better appreciate the discipline, attribute more value to the time they invest in the course, and become motivated to learn rather than perform.

The result supports the work of Bures et al. (2002), which reported that the learner will be more satisfied with distance education the more the topic has personal relevance and value to him or her. Web-based training designers should be assiduous about designing tasks that learners will like and find personally and professionally pertinent. Thus, the perception of course relevance scale can be thought of as a continuum from interest or curiosity in the subject to wanting support in the pursuit of learning to a more intentional seeking out of a community of learners with a common interest (Kennedy, 2002). In an effort to increase the personal and professional value associated with future training events, it would be worthwhile for designers of online training curricula (such as LE@D) to send periodic surveys to targeted populations such as library professionals to gather valuable data regarding germane topics and required compliance issues.

As reported in Table 12, an analysis of beta weights and structure coefficients was performed to determine the explanatory credit the independents variables have to the dependent learner readiness variable. The course relevance variable reported a beta weight of .247. The structured coefficient (.795) indicated that this variable also had a sizeable contribution (63%) to the dependent variable learner satisfaction.

Future Research

The focus of this study was very specific, targeting a unique population of learners, library professionals. Future researchers should consider targeting

an online training event that does not focus on a specific population. For example, a certificate program in various fields such as bookkeeping, or AutoCAD, pharmacy tech, medical transcriptions, or real estate would draw a broader, more varied population.

Further research should be carried out in which there is more variance in the satisfaction variable. This study used the same variables for the satisfaction construct as the Anderson (2005) study. However, expanding the variance beyond the 5 items included in the satisfaction variable would further explain what leads to satisfaction in an online training event.

This study revealed that online features play a critical role in learner satisfaction and accounted for the majority of the explained variance. Additional research should be carried out to further and more fully determine what online features lead to greater satisfaction on the part of the learner.

Although learner readiness accounted for only 26% of the explained variance of learner satisfaction, further research could prove beneficial in this construct. A future study might explore the impact of a brief tutorial covering online navigation and objectives prior to the learner entering the training event. This study could use a control and experimental group, one with the intervention and the other without, to determine whether increased learner readiness could impact the overall satisfaction of the online training experience.

Further research should be conducted to examine the impact of other variables on learner satisfaction. This study focused on only three variables online features, learner readiness, and course relevance; however, it is

important to have more complete analyses of what leads to overall learner satisfaction.

Conclusion

Using bivariate correlation procedures and multiple regression analysis, this study tested to determine whether learner readiness, online features, and course relevance are associated with learner satisfaction in Web-based non-credit training. In summarizing the results of the three research hypotheses, all three variables were found to be statistically significant and notably related to learner satisfaction with adult Web-based training. Of the three variables, online features had the strongest positive correlation with satisfaction, indicating that if learners are comfortable with the technology and the online course features they are more likely to be satisfied with the learning experience. This has implications for the design of online courses, where attention must be paid to the unique elements that make up an online training event. This includes the design of both the technical and the social environment of a Web-based course (Gunawardena & Duphorne, 2000). As Harasim (1993) observed, "Networks are the intersection of social and technical systems; design involves both technical and social considerations" (p.29).

Course relevance and learner readiness were similar in their importance to learner satisfaction. These results indicate that if learners have prior experience with online learning and believe that there is value or a personal stake in the learning event, they will have a more satisfying

learning experience. Of the 48% explained variance of the three variables collectively, course relevance and learner readiness only added only 7% additional variance.

Overall, the majority of respondents were very satisfied with the Web-based training in which they participated. Satisfaction was very high throughout each construct, with an overall mean score of 4.09 on a 5-point scale. The findings from this study support the position that participants who are prepared for online training, are familiar with online features, and who find the course relevant, are more satisfied with their Web-based training experience.

Satisfied learners are motivated to continue learning because they perceive value in what they are doing. To keep learners satisfied, instruction should be designed to allow them to use their newly learned skills as soon as possible in as authentic a setting as possible (Keller, 1983). According to Nadler and Nadler (1994) learning is the acquisition of new skills, attitudes, and knowledge. Learning results in change. For facilitation effectiveness, the emphasis must be on both the acquisition and use of the new knowledge, skills, attitudes, and abilities.

APPENDIX A
(Online Survey and Word Document Survey)
ADULT LEARNER SATISFACTION WITH WEB-BASED NON-CREDIT
WORKFORCE TRAINING

Student Satisfaction Survey[Exit this survey >>](#)**1. Adult Learner Satisfaction with Web-Based Non-Credit Workforce Training**

Thank you for participating in this survey research project. This survey gathers data on learner satisfaction with web-based training. It will take you approximately 5 minutes to complete the survey.

Please score the following by checking the appropriate box.

1. Student Satisfaction Scale

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
I am satisfied with my online learning experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I plan to take another online course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would recommend that others participate in an online course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
After finishing the course, I felt a sense of accomplishment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The course kept me engaged until I finished.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Course Relevance Scale

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Understanding the subject matter of this course is relevant to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The content of this course is of great interest to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The course content provided job-related information and/or skill building for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I liked the subject matter of this course.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
What I learned in this course will be useful in settings beyond my current job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Online Features Scale

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
The videos and computer graphics in the course enhanced my learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The course assessments effectively measured my learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical problems did not limit my participation in the training.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Learner Readiness Scale

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
Before taking this course, I was comfortable with learning in an online environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Any obstacles I encountered with using online learning did not interfere with my learning.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online learning is an effective way to gain skills and information needed on the job.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Online learning is a better way to learn for on-the-job training than classroom methods.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

APPENDIX A

Adult Learner Satisfaction with Web-Based Non-Credit Workforce Training

Thank you for participating in this survey research project. This survey gathers data on learner satisfaction with web-based training. It will take you approximately 5 minutes to complete the survey.

Please score the following on a 1 to 5 scale by checking the appropriate box.

1 = Strongly Disagree; 2= Disagree; 3= Uncertain; 4= Agree; 5 = Strongly Agree.

Student Satisfaction Scale

	1	2	3	4	5
I am satisfied with my online learning experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I plan to take another online course.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would recommend that others participate in an online course.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
After finishing the course, I felt a sense of accomplishment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The course kept me engaged until I finished.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Course Relevance Scale

Understanding the subject matter of this course is relevant to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The content of this course is of great interest to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The course content provided job-related information and/or skill building for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I liked the subject matter of this course	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What I learned in this course will be useful in settings beyond my current job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Online Features Scale

The videos and computer graphics in the course enhanced my learning.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

The course assessments effectively measured my learning.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Technical problems did not limit my participation in the training.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Learner Readiness Scale

Before taking this course, I was comfortable with learning in an online environment.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Any obstacles I encountered with using online learning did not interfere with my learning.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Online learning is an effective way to gain skills and information needed on the job.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Online learning is a better way to learn for on-the-job training than classroom methods.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

APPENDIX B
INFORMED CONSENT NOTICE

Thank you for participating in this survey research project. This short survey will take only five minutes to complete. As a user of online training courses, your input is critical.

The survey will provide data for a study of LE@D online training courses being conducted by Pamela Morgan, a PhD candidate from the University of North Texas. The results will not include any information that will make it possible to identify participants.

Participation in this study is completely voluntary. You have the right to skip any question you choose not to answer. There are no foreseeable risks involved in this study; however, if you decide to withdraw your participation you may do so at any time by simply leaving the web site.

All research records will be kept confidential by the principal investigator. No individual responses will be disclosed and there is no identification information associated with the survey. If you have any questions about the study, please contact Pamela Morgan at (940) 397-4785. You may also contact my major professor at the University of North Texas. His name is Dr. Jerry Wircenski, and his office telephone number is (940) 565-2714.

You will be included in a drawing for a chance to receive a \$75.00 gift certificate to Barnes & Noble as compensation for your participation.

This research project has been reviewed and approved by the UNT Institutional Review Board. You may contact the UNT IRB at (940) 565-3940 if you have any questions regarding your rights as a research subject. You may print this notice for your records.

By clicking the link below, you are giving your informed consent to participate in the study.

[web link to be placed here]

Sincerely,

Pamela Morgan
Doctoral Candidate, University of North Texas

Research Supervised By:
Dr. Jerry Wircenski
College of Education
University of North Texas
(940) 565-2714

APPENDIX C
FOLLOW-UP LETTER

I appreciate the many survey responses I have received to date. Since the survey is completely anonymous, I must resend this reminder to the entire population.

You will be included in a drawing for a chance to receive a \$75.00 gift certificate to Barnes & Noble as compensation for your participation.

If you have already replied, please disregard this email and accept my sincere thanks. If not, please do so today. I am especially grateful for your help because it is only by asking people like you to share your experiences with online work force training that I can understand adult learner's satisfaction with web-based learning.

The survey takes 5 minutes to complete. You may click on the link below or cut and paste it into your internet browser.

[Survey link to be placed here]

Pamela Morgan
Doctoral Candidate, University of North Texas

Research Supervised By:
Dr. Jerry Wircenski
College of Education
University of North Texas
(940) 565-2714

APPENDIX D
SECOND FOLLOW-UP LETTER

Subject line: LAST CHANCE

This is your last chance to be included in a drawing for a chance to receive a \$75.00 gift certificate to Barnes & Noble as compensation for your participation.

I appreciate the many survey responses I have received to date. Since the survey is completely anonymous, I must resend this reminder to the entire population.

If you have already replied, please disregard this email and accept my sincere thanks. If not, please do so today. I am especially grateful for your help because it is only by asking people like you to share your experiences with online work force training that I can understand adult learner's satisfaction with web-based learning.

The survey takes 5 minutes to complete. You may click on the link below or cut and paste it into your internet browser.

[Survey link to be placed here]

Pamela Morgan
Doctoral Candidate, University of North Texas

Research Supervised By:
Dr. Jerry Wircenski
College of Education
University of North Texas
(940) 565-2714

APPENDIX E

ANDERSON: AUTHOR'S PERMISSION

From: Kevin.Anderson@thomson.com [mailto:Kevin.Anderson@thomson.com]
Sent: Friday, August 18, 2006 9:57 AM
To: Morgan, Pamela
Subject: RE: instrument

Pamela:

Enclosed is the instrument. I have cut and pasted it into this email and attached a copy. Pls. confirm that you have received it. It is not published anywhere so you can reference the dissertation itself. Good luck and feel free to send me other questions. Pls. send me a copy of your dissertation when completed.

Thanks

Kevin

--Original Message--

From: Morgan, Pamela [mailto:pamela.morgan@mwsu.edu]

Sent: Thu 8/17/2006 5:43 PM

To: Anderson, Kevin (West)

Subject: instrument

Hi Dr. Anderson,

I would like to talk to you about your instrument. Is it published somewhere? Do you allow it to be used for further research?

Thank you,

Pam Morgan

REFERENCES

- Alreck, P. L., & Settle, R. B. (2004). *The survey research handbook* (3rd ed.). New York: McGraw-Hill.
- Anderson, K. (2005). The relationship of course relevance, online features, and perceived learner readiness with corporate employee satisfaction with eLearning (Doctoral Dissertation, University of Minnesota, 2005). *Dissertation Abstracts*, 1(3).
- Aggarwal, A. (2000). *Web-based learning and teaching technologies: Opportunities and challenges*. Hershey, PA: Idea Group.
- Arbaugh, J. B. (2000). How classroom environment and student engagement affect learning in Internet-based MBA courses. *Business Communication Quarterly*, 63(4), 9-26.
- Ary, D., Jacobs, L. C., & Razavieh, A. (1985). *Introduction to research in education*. New York: Holt, Rinehart and Winston.
- Baldwin, T. T., & Ford, J. K. (1988). Transfer of training: A review and directions for future research. *Personnel Psychology*, 4(1), 63-105.
- Bernard, R., & Amundsen, C. (1989). Antecedents to dropout in distance education: Does one model fit all? *Journal of Distance Education*, 4 (2), 25-46.
- Bernard, R., & Ryan, G. (2000). *Social research methods: An instructor's manual*. Thousand Oaks, CA: Sage.
- Bersin, J. (2005, February). *The future of eLearning. Training innovations*. Retrieved October, 11, 2006, from

[http://www.propoint.com/ppi/index.cfm?fuseaction=ppi.content&p=trainin
g_innovations_0205](http://www.propoint.com/ppi/index.cfm?fuseaction=ppi.content&p=trainin
g_innovations_0205)

- Biner, P.M. (1993). The development of an instrument to measure student attitudes toward televised courses. *The American Journal of Distance Education*, 7(1), 62-73.
- Boyle, K. (2002). *Web-based training overview*. Retrieved May 11, 2006, from San Diego State University at <http://coe.sdsu.edu/eet/articles/webtraining/start.htm>
- Britt, P. (2004). Elearning on the rise. *EContent*, 27(11), 36-40.
- Brown, B. (2000, October). *Web-based training*. Retrieved November 3, 2002, from ERIC Clearinghouse for Adult Education Web Site: <http://web21.epnet.com/citation.asp>
- Bures, M. E., Amundsen, C. C., & Abrami, P. C. (2002). Motivation to learn via computer conferencing: Exploring how task-specific motivation and CC expectation are related to student acceptance of learning via CC. *Journal of Educational Computer Research*, 27(3), 249-263.
- Chance, P. (1994). *Learning and behavior*. Pacific Grove, CA: Brooks/Cole.
- Chute, A. G., Thompson, M. M., & Hancock, B. W. (1999). *The McGraw-Hill handbook of distance learning*. New York: McGraw-Hill.
- Clark, R., & Lyons, C. (1999). Using web-based training wisely. *Training*, 36(7), 51-56.

- Clark, R., & Taylor, D. (1992). Training problem solving skills using cognitive strategies: Novice versus expert problem solvers. *Performance and Instruction*, 31(3), 32-37.
- Courville, T., & Thompson, B. (2001). Use of structure coefficients in published multiple regression articles. *Educational and Psychological Measurement*, 61(2), 229-248.
- Daniel, J.S. (2000). At the end of now-global trends and their regional impacts. In V. Reddy & S. Manjulika (Eds.), *The world of open and distance learning* (pp. 451-461). New Delhi: Viva Books.
- Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-342.
- DeBourgh, G. A. (2003). Predictors of student satisfaction in distance-delivered graduate nursing courses: What matters most? *Journal of Professional Nurses*, 19(3), 149-163.
- Drennan, J., Kennedy, J., & Pisarski, A. (2005). Factors affecting student attitudes toward flexible online learning in management education. *The Journal of Educational Research*, 98, 6, 331-340.
- Duggan, S., & Barich, S. (2001). The knowledge economy and corporate eLearning. In *Current & upcoming developments in the U.S. market* (World Internet Center) (pp. 2-13). Silicon Valley, CA: World Internet Center.
- Eastmond, D.V. (1994). Adult distance study through computer conferencing. *Distance Education*, 15(1), 128-152.

Elearning vs. traditional classroom instruction. (2006). Retrieved October 11, 2006, from Best Web Training.Com Web site:

<http://www.bestwebtraining.com/webvsclass.htm>

Fraenkel, J. R., & Wallen, N.E. (1990). *How to design and evaluate research in education.* New York: McGraw-Hill.

Gall, M. D., Borg, W. R., & Gall, J. P. (1996). *Educational research: An introduction.* White Plains, NY: Longman.

Gay, L. R. (1987). *Educational research: Competencies for analysis and application* (3rd ed.). Columbus, OH: Merrill.

Gilroy, P., Long, P., Rangecroft, M., & Tricker, T. (1999). The evaluation of course quality through a service template. *Journal of Evaluation* 5(1), 80-91.

Glock, C.Y. (Ed.). (1967). *Survey research in the social sciences.* New York: Russell Sage Foundation.

Greengard, S. (1999). Web-based training yields maximum returns. *Workforce*, 78 (2), 95-96.

Gunawardena, C. N., & Duphorne, P. L. (2000). Predictors of learner satisfaction in an academic computer conference. *Distance Education*, 21(1), 101-117.

Hall, B. (2001, May). *FAQs about e-Learning. Your guide to e-Learning* (2).

Retrieved November 21, 2002, from

<http://www.brandonhall.com/public/faqs2/index.htm>

- Hamilton, S., & Zimmerman, J. (2002). Breaking through zero-sum academics: Two students' perspectives on computer-mediated learning environments. In K. E. Rudestam & J. Schoenholtz-Read (Eds.). *Handbook of online learning* (257-276). Thousand Oaks, CA: Sage.
- Harasim, L. M. (Ed.) (1993). *Global Networks: Computers and international communication*. Cambridge, MA: MIT Press.
- Hawksley, R., & Owen, J. (2002). Going the distance: Are there common factors in high performing distance learning? London, England: Learning and Skills Development Agency.
- Henson, R. (2006). Effect-size measures and meta-analytic thinking in counseling psychology research. *The Counseling Psychologist*, 34(5), 601-629.
- Hicks, S. (2000). Evaluating e-Learning. *T + D*, 54(12), 75.
- Hinkle, D., Wiersma, W., & Jurs, S. (2003). Applied statistics for the behavioral sciences (5th ed.). Boston: Houghton Mifflin Company.
- Hiltz, S. R. (1993). Correlates of learning in a virtual classroom. *International Journal of Man-Machine Studies*, 39, 71-98.
- Hughes, J. (2004). Toward a theory of online learning. In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning* (pp.367-385). Athabasca, Canada: Athabasca University.
- Hutcheson, G., & Sofroniou, N. (1999). *The multivariate social scientist: Introductory statistics using generalized linear models*. Thousand Oaks, CA: Sage Publications.

- Industry report. (2006). *Training*, 43(12), 21-32.
- Johnson, S., Aragon, S., Shaik, N., & Palma-Rivas, N. (2000). Comparative analysis of learner satisfaction and learning outcomes in online and face-to-face learning environments. *Journal of Interactive Learning Research*, 11(1), 29-49.
- Johnston, J., Killion, J., & Oomen, J. (2005). Student satisfaction in the virtual classroom. *The Internet Journal of Allied Health Sciences and Practice*, 3(2). Retrieved November 20, 2006, from <http://ijahsp.nova.edu/articles/vol3num2/johnston.htm>
- Jones, F., Koh, M., Hill, J., & Singleton, E. (2004). Useful and challenging characteristics of Web-based training: Comparing perceptions of U.S. and Korean employees. *World Conference on E-Learning in Corp., Govt., Health, & Higher Ed.*, 2004(1), 1933-1938. Retrieved December 2, 2006, from <http://dl.aace.org/16711>
- Jones, V. E. (2004). Comparison of electronic-learning and classroom solutions for executive development. Unpublished. University of Phoenix, United States -- Arizona.
- Jung, I., & Rha, I. (2000). Effectiveness and cost-effectiveness of online education: A review of the literature. *Educational Technology*, 40(4), 57-60.
- Keller, J.M. (1983). Motivational design of instruction. In C. M. Reigeluth (Ed.), *Instructional-design theories and models: An overview of their current status* (pp. 383-434). Mahwah, NJ: Erlbaum.

- Keller, J.M. (1987). Strategies for stimulating the motivation to learn. *Performance & Instruction*, 26(8), 1-7.
- Kennedy, C. (2002). *Formative evaluation of an online teaching strategy* (Berkeley Evaluation and Assessment Research Center). Berkeley: University of California.
- Ketter, P. (2006). Investing in learning; Looking for performance. *T+D*, 60(12), 30-33.
- Kim, K. (2005). *Motivational influences in self directed online learning environments: A qualitative case study*. Paper presented at the annual meeting of the Association for Education Communications and Technology, Chicago, IL.
- Kirkpatrick, D. L. (1979). Techniques for evaluating training programs. *Training and Development Journal*, 33(6), 78-92.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28, 563-575.
- Laszlo, F. (2003). The identification of online learning motives in use by undergraduate students. *Delta Pi Epsilon Journal*, 63-72.
- LE@D [Computer software]. (2003). Denton, TX: Lifelong Education @ Desktop.
- Levin, C. (2001, December 26). Banking on the virtual classroom. *PC Magazine*, 20, 5.

- Likert, R. (1932). The method of constructing an attitude scale. *Archives of Psychology* 140, 44-53.
- Lim, D. H. (2002). Perceived differences between classroom and distance education: Seeking instructional strategies for learning application. *International Journal of Educational Technology*, 3(1), Retrieved December 8, 2006, from <http://www.ed.uiuc.edu/ijet/v3n1/d-lim/index.html>
- Lim, D. H. (2004). Fixed versus flexible learning: Differences in learning, application, and instructional perception. In T. M. Eagan & M. L. (Eds.), *Academy of human resource development proceedings* (pp. 1060-1066). Austin, TX: Academy of HRD.
- Lim, D., Morris, M., & Kupritz, V. (2006, February). *Online vs. blended learning: Differences in instructional outcomes and learner satisfaction*. Paper presented at the Academy of Human Resource Development International Conference (AHRD), Columbus, OH.
- Litwin, M. (1995). *How to measure survey reliability and validity*. Thousand Oaks, CA: Sage.
- Matross, R. (1999). *Designing questionnaires and surveys: A professional development course on questionnaire research*. Minneapolis: University of Minnesota.
- Mayzer, R., & DeJong, C. (2003). Student satisfaction with distance education in a criminal justice graduate course. *Journal of Criminal Justice Education*, 14 (1), 37-53.

- Moore, M. G., & Kearsley, G. (1996). *Distance education: A systems view*. Belmont, CA: Wadsworth.
- Mungania, P. (2003). *The seven e-learning barriers facing employees* (Final Report, pp. 1-88). Louisville, KY: University of Louisville.
- Nadler, L. & Nadler, Z. (1994). *Designing training programs: The critical events model* (2nd). Houston: Gulf Publishing.
- Navarro, P. (2000). The promise and potential pitfalls of cyber learning. In R.A. Cole (Ed.), *Issues in Web-based pedagogy* (pp.281-297). Westport, CT: Greenwood Press.
- Pedhazur, E. J. (1997). *Multiple regression in behavioral research: Explanation and prediction*. Fort Worth, TX: Harcourt Brace College Publishers.
- Persinos, J. (2005). Rapid knowledge transfer in changing times. *Larstan Business Reports*, 1-4. Retrieved July 25, 2005, from database.
- Pinsonneault, A., & Kraemer, K. (1991). *Survey research methodology in management information systems: An assessment*. Working paper presented at the Graduate School of Management, Irvine, CA.
- Piskurich, G. (Ed.). (2004). *Getting the most from online learning*. San Francisco: Pfeiffer.
- Powers, S. M., Davis, M., & Torrence, E. (1999). *Person-environment interaction in the virtual classroom: An initial examination*. Paper presented at the National Convention of the Association for Educational Communications and Technology, Houston, TX.
- Real-time results. (2006, October). *T + D*, 60(10), 91-92.

- Robinson, D. G., & Robinson, J. C. (1998). *Moving from training to performance*. San Francisco: Berrett-Koehler.
- Roblyer, M. D., & Wiencke, W.R. (2003). Design and use of a rubric to assess and encourage interactive qualities in distance courses. *American Journal of Distance Education*, 17(2), 77-99.
- Rovai, A. (April, 2002). Building a sense of community at a distance. *International Review of Research in Open and Distance Learning*, 3,1.
- Russell, T. L. (1999). *The no significant difference phenomenon* (5th ed.). Raleigh: North Carolina State University.
- Schank, S. C. (2002). *Designing world-class e-learning: How IBM, GE, Harvard Business School, & Columbia University are succeeding at eLearning*. New York: McGraw-Hill.
- Scheuren, F. (Ed.). (2004). What is a survey? [Special issue]. *American Statistical Association* 4(2).
- Shannon, D., & Davenport, M. (2001). *Using SPSS to solve statistical problems* (1st ed.). Upper Saddle River, NJ: Prentice-Hall.
- Shavelson, R. J., & Towne, L. (Eds.). (2002). *Scientific research in education*. Washington, DC: National Academy Press.
- Simmons, D. E. (2002). The forum report: E-learning adoption rates and barriers. In A.Rossett (Ed.). *The ASTD E-learning handbook: Best practices, strategies and case studies for an emerging field* (pp. 19-23). New York: McGraw-Hill.

- Simonson, M., Smaldino, S., Albright, M., & Zvacek, S. (Eds.). (2002). *Teaching and learning at a distance: Foundations of distance education* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
- Slick, J. (2004, Summer). *Student readiness as a predictor of satisfaction in the online environment*. Paper presented at the WebCT Impact 2004, Orlando, FL.
- Smith, P.L., & Ragan, T.J. (1999). *Instructional design* (2nd ed.). New York: Wiley.
- Sole, M. L., & Lindquist, M. (2001). Enhancing traditional, televised, and videotaped courses with web-based technologies: A comparison of student satisfaction. *Nursing Outlook*, 49, 132-137.
- Sringam, C., & Greer, R. (2000). An investigation of an instrument for analysis of student-led electronic discussions. In R. Sims, M. O'Reilly, & S. Sawkins (Eds), *Learning to choose - Choosing to Learn*. Proceedings of 17th Annual ASCILITE Conference, Coffs Harbour, NSW: Southern Cross University Press, 81-91.
- Stockley, D. (2005). *E-Journey on E-Learning*. Retrieved April 17, 2005, from <http://derekstockley.com>
- Strother, S. (2002). An assessment of the effectiveness of e-learning in corporate training programs. *International Review of Research in Open and Distance Learning*, 3(1). <http://www.irrodl.org/content/v3.1/index.html>
- Tabachnick, B.G. & Fidell, L., (2001). *Using multivariate statistics* (4th ed.) Boston: Allyn & Bacon.

- Thomas, S. (2001). *The wealth of knowledge*. New York: Doubleday.
- Tresman, S. (2002). Toward a strategy for improved student retention in programmes of open, distance education: A case study from the open university UK. *International Review of Research in Open and Distance Learning*, 3(1). <http://www.irrodl.org/content/v3.1/index.html>
- Watkins, R. (2005). *75 E-learning activities*. San Francisco: Jossey-Bass/Pfeiffer.
- WebJunction [Computer software]. (2003). Retrieved from <http://webjunction.org/do/displaycontent?id=8327>